State of Michigan
Department of State Police
Department of Management and Budget

National Law Enforcement and
Corrections Technology Center
A Program of the National Institute of Justice

2003 Model Year Vehicle Evaluation

STATE OF MICHIGAN
Department of State Police
and
Department of Management and Budget

2003 Model Year Police Vehicle Evaluation Program

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PREFACE

The Michigan State Police Vehicle Test Team is pleased to announce the results of the 2003 model year Police Vehicle Evaluation. This year twelve vehicles were tested including three non-published vehicles.

We enjoyed sunny skies with warm temperatures at DaimlerChrysler Proving Grounds and at our vehicle dynamics test site, Grattan Raceway. We appreciate your continued support and encouragement.

The vehicles evaluated this year included:

POLICE CATEGORY

Chevrolet Impala 9C1	3.8L SPFI
Dodge Intrepid	3.5LSPFI
Ford Police Interceptor	4.6L SPFI
AM General Hummer	6.5L (Turbo Diesel)

SPECIAL SERVICE CATEGORY

Ford Explorer*	4.6L SFI (2 Wheel Drive)
Ford Expedition*	5.4L SMFI (4 Wheel Drive)
Ford Expedition*	4.6L SPFI (2 Wheel Drive)
Chevrolet Tahoe*	5.3L SPFI (2 Wheel Drive)
Chevrolet Tahoe*	5.3L SPFI (4 Wheel Drive)

**Special Service Package vehicles are not suitable for high speed, pursuit or emergency driving according to the manufacturers.*

Non-Published Vehicles (Prototypes)

Chevrolet Pursuit Tahoe

Ford Police Interceptor

Ford Police Interceptor

All of the vehicles were tested with a clean roof (no overhead light or lightbar) and without “A” pillar mount spotlights. We believe this is the best way to ensure all of the cars are tested on an equal basis. Remember that once overhead lights, spotlights, radio antennas, sirens, and other emergency equipment are installed, overall performance may be somewhat lower than we report.

Each vehicle was tested with the tires that are available as original equipment on the production model. Specific tire information for each vehicle is available in the Vehicle Description portion of this report.

DaimlerChrysler Proving Grounds - Acceleration, Top Speed, & Braking Tests
During the braking test, the Hummer brake heat up procedure speeds were at 76 m.p.h. instead of 90 m.p.h.

All vehicles listed in this report were equipped with electronic speed limiters.

The Acceleration and Top Speed team had tested three vehicles when a computer-programming problem was detected. Once we corrected the programming, the vehicles were retested.

Grattan Raceway - Vehicle Dynamics (High Speed Handling) Test
Please note the change in testing procedure methodology for the Vehicle Dynamics portion of the program.

The Dodge Intrepid completed the test, however two of the drivers had to deal with brake fade. When the vehicle was brought into pit lane after completing the last lap, the test team extinguished a fire in the left front brake assembly.

Our test drivers detected the Chevrolet Impala transmission shifting harshly at the hairpin turn. Our staff, with Chevrolet personnel, over filled the transmission fluid to avert this difficulty. The Hummer had a problem with a CV boot so we elected to pull it from the test after 3 test runs.

*The Chevrolet Tahoes, Ford Explorer, and Ford Expeditions are “special-service” vehicles and are not driven through the vehicle dynamics (high-speed handling) test. These vehicles are not recommended for high-speed emergency driving or pursuit applications.

We recommend you review the information contained in this report and then apply it to the needs of your agency. This report is not an endorsement of products, but a means of learning what’s available for your officers so they can do their job effectively and safely. If anything in this report requires further explanation or clarification, please call or write.

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ACKNOWLEGEMENTS

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Colonel Stephen D. Madden, Director, Michigan Department of State Police
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Retired Sgt. Bill McFall

Michigan State Police Vehicle Test Team

Special thanks to General Motors, Ford Motor Company, and DaimlerChrysler Motors vehicle manufacturers for their hard work in building and preparing the test cars. We are grateful for your dedication to law enforcement. Everyday law enforcement looks to these vehicles to do a list of duties varied and enduring.

Finally, thanks to all in the United States and Canada who represent law enforcement and purchasing agencies for your constant encouragement and support. We are proud to make a contribution to the law enforcement community.

Software helps select vehicles

Staff of the Office of Law Enforcement Standards (OLES), located at the National Institute of Standards and Technology (NIST), has created a computer program for the National Institute of Justice to help police fleet administrators select the patrol vehicle that is best suited to the needs of their department. The system, called AutoBid, is based on vehicle performance test data for police patrol vehicles published annually by the Michigan State Police.

AutoBid helps fleet managers select the best patrol vehicle based on vehicle test scores. It identifies which vehicle has the highest overall test performance and ranks the vehicles according to their relative performance. The overall performance score of a vehicle is based on each test score weighted by the importance weight for each test category assigned by the user. The overall performance score is particularly helpful when an evaluation is needed before a request for bids has been prepared. The performance analysis can be used to determine which models warrant a request for bids. AutoBid includes an additional method of vehicle selection using a combined score based on both vehicle cost and test scores. This method will identify which vehicle is the "Best Buy" in terms of the lowest cost for equivalent test performance and ranks the vehicles by the bid price adjusted for performance.

AutoBid is available as an application, which does not require you to be connected to the Internet while it is running and will run on any operating system. To use the AutoBid Application you must first download and install the Java Runtime Environment onto your computer. Then you need to download and install the AutoBid Application. Both of these components can be downloaded from the National Law Enforcement and Corrections Technology Center's (NLECTC's) Internet site, JUSTNET, at http://www.justnet.org

About the National Institute of Justice

NIJ is the research, development, and evaluation agency of the U.S. Department of Justice and is solely dedicated to researching crime control and justice issues. NIJ provides objective, independent, nonpartisan, evidence-based knowledge and tools to meet the challenges of crime and justice, particularly at the State and local levels. NIJ's principal authorities are derived from the Omnibus Crime Control and Safe Streets Act of 1968, as amended (42 U.S.C. §§ 3721–3722).

NIJ's Mission

In partnership with others, NIJ's mission is to prevent and reduce crime, improve law enforcement and the administration of justice, and promote public safety. By applying the disciplines of the social and physical sciences, NIJ—

- **Researches** the nature and impact of crime and delinquency.
- **Develops** applied technologies, standards, and tools for criminal justice practitioners.
- **Evaluates** existing programs and responses to crime.
- **Tests** innovative concepts and program models in the field.
- **Assists** policymakers, program partners, and justice agencies.
- **Disseminates** knowledge to many audiences.

NIJ's Strategic Direction and Program Areas

NIJ is committed to five challenges as part of its strategic plan: 1) *rethinking* justice and the processes that create just communities; 2) *understanding* the nexus between social conditions and crime; 3) *breaking* the cycle of crime by testing research-based interventions; 4) *creating* the tools and technologies that meet the needs of practitioners; and 5) *expanding* horizons through interdisciplinary and international perspectives. In addressing these strategic challenges, the Institute is involved in the following program areas: crime control and prevention, drugs and crime, justice systems and offender behavior, violence and victimization, communications and information technologies, critical incident response, investigative and forensic sciences (including DNA), less-than-lethal technologies, officer protection, education and training technologies, testing and standards, technology assistance to law enforcement and corrections agencies, field testing of promising programs, and international crime control. NIJ communicates its findings through conferences and print and electronic media.

NIJ's Structure

The NIJ Director is appointed by the President and confirmed by the Senate. The NIJ Director establishes the Institute's objectives, guided by the priorities of the Office of Justice Programs, the U.S. Department of Justice, and the needs of the field. NIJ actively solicits the views of criminal justice and other professionals and researchers to inform its search for the knowledge and tools to guide policy and practice.

NIJ has three operating units. The Office of Research and Evaluation manages social science research and evaluation and crime mapping research. The Office of Science and Technology manages technology research and development, standards development, and technology assistance to State and local law enforcement and corrections agencies. The Office of Development and Communications manages field tests of model programs, international research, and knowledge dissemination programs. NIJ is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.

To find out more about the National Institute of Justice, please contact:

National Criminal Justice Reference Service
P.O. Box 6000
Rockville, MD 20849–6000
800–851–3420
e-mail: *askncjrs@ncjrs.org*

About the Law Enforcement and Corrections Standards and Testing Program

The Law Enforcement and Corrections Standards and Testing Program is sponsored by the Office of Science and Technology of the National Institute of Justice (NIJ), U.S. Department of Justice. The program responds to the mandate of the Justice System Improvement Act of 1979, which directed NIJ to encourage research and development to improve the criminal justice system and to disseminate the results to Federal, State, and local agencies.

The Law Enforcement and Corrections Standards and Testing Program is an applied research effort that determines the technological needs of justice system agencies, sets minimum performance standards for specific devices, tests commercially available equipment against those standards, and disseminates the standards and the test results to criminal justice agencies nationwide and internationally.

The program operates through the following:

- The **Law Enforcement and Corrections Technology Advisory Council** (LECTAC), consisting of nationally recognized criminal justice practitioners from Federal, State, and local agencies, assesses technological needs and sets priorities for research programs and items to be evaluated and tested.

- The **Office of Law Enforcement Standards** (OLES) at the National Institute of Standards and Technology develops voluntary national performance standards for compliance testing to ensure that individual items of equipment are suitable for use by criminal justice agencies. The equipment standards developed by OLES are based on laboratory evaluation of commercially available products in order to devise precise test methods that can be universally applied by any qualified testing laboratory and to establish minimum performance requirements for each attribute of a piece of equipment that is essential to how it functions. OLES-developed standards can serve as design criteria for manufacturers or as the basis for equipment evaluation. The application of the standards, which are highly technical in nature, is augmented through the publication of equipment performance reports and user guides. Individual jurisdictions may use the standards in their own laboratories to test equipment, have equipment tested on their behalf using the standards, or cite the standards in procurement specifications.

- The **National Law Enforcement and Corrections Technology Center** (NLECTC), operated by a grantee, supervises a national compliance testing program conducted by independent laboratories. The standards developed by OLES serve as performance benchmarks against which commercial equipment is measured. The facilities, personnel, and testing capabilities of the independent laboratories are evaluated by OLES prior to testing each item of equipment. In addition, OLES helps NLECTC staff review and analyze data. Test results are published in consumer product reports designed to help justice system procurement officials make informed purchasing decisions.

Publications are available at no charge through NLECTC. Some documents are also available online through the Justice Technology Information Network (JUSTNET), the center's Internet/World Wide Web site. To request a document or additional information, call 800–248–2742 or 301–519–5060, or write:

National Law Enforcement and Corrections Technology Center
P.O. Box 1160
Rockville, MD 20849–1160
E-mail: *asknlectc@nlectc.org*
World Wide Web address: *http://www.justnet.org*

About the National Law Enforcement and Corrections Technology Center System

The National Law Enforcement and Corrections Technology Center (NLECTC) system exists to support the Nation's structure of State and local law enforcement and corrections. The United States has more than 18,000 law enforcement agencies, 50 State correctional systems, and thousands of prisons and jails. The fragmented nature of law enforcement and corrections impedes the dissemination of valuable new information, fosters a patchwork marketplace that discourages the commercialization of new technologies, and underscores the need for uniform performance standards for equipment and technologies.

The National Institute of Justice's (NIJ's) Office of Science and Technology (OS&T) created NLECTC in 1994 as a national system of technology centers that are clearinghouses of information and sources of technology assistance and that also attend to special needs, including technology commercialization and standards development.

The NLECTC system's purpose is to determine the needs of the law enforcement and corrections communities and assist them in understanding, using, and benefitting from new and existing technologies that, increasingly, are vital levers of progress in criminal justice. NIJ/OS&T and the NLECTC system are the only current programs developed by the Federal Government that focus solely on the development and transfer of technologies to State and local law enforcement and corrections.

NLECTC is a program of NIJ, the research and development arm of the U.S. Department of Justice. The system currently consists of a national center, five regional centers, and several specialty offices. Also contributing to the initiatives of the center system is the Office of Law Enforcement Standards. The centers are co-located with a host organization or agency that specializes in one or more areas of technology research and development.

The National Center, located in Rockville, Maryland, is the system's information hub. Regional centers are currently located in Alaska, California, Colorado, New York, and South Carolina. Specialty centers located around the country deal with border matters (California), commercialization of law enforcement and corrections technologies (West Virginia), rural law enforcement issues (Kentucky), and standards and testing (Maryland).

Each center shares roles with the other centers and has distinctive characteristics. All are focused on helping law enforcement and corrections take full advantage of technology's rapidly growing capacity to serve the purposes of crime control and the criminal justice system.

A national body of criminal justice professionals, the Law Enforcement and Corrections Technology Advisory Council (LECTAC), helps identify research and development priorities, thereby influencing the work of the NLECTC system. In addition, each NLECTC center has a regional advisory council of law enforcement and corrections officials. Together, LECTAC and the advisory councils help to keep the NLECTC system attentive to technological priorities and the needs of law enforcement and corrections. They help to link the end user with the developer to create technologies that adequately meet operational requirements and establish which potential technologies should be pursued for development.
All of the current regional centers have distinctive roles or focus areas, that, in many cases, are aligned with the expertise of host organizations and agencies. The centers are currently operated under cooperative agreements or interagency agreements with host organizations and agencies whose employees staff the centers.

To receive more information or to add your name to the NLECTC mailing list, call 800–248–2742 or 301–519–5060, or write:

National Law Enforcement and Corrections Technology Center
P.O. Box 1160
Rockville, MD 20849–1160
E-mail: *asknlectc@nlectc.org*
World Wide Web address: *http://www.justnet.org*

The following is a list of NLECTC regional and affiliated facilities that assist NIJ in fulfilling its mission.

NLECTC–Northeast
26 Electronic Parkway
Rome, NY 13441–4514
(p) 888–338–0584
(f) 315–330–4315
E-mail: *nlectc_ne@rl.af.mil*

NLECTC–Southeast
5300 International Boulevard
North Charleston, SC 29418
(p) 800–292–4385
(f) 843–760–4611
E-mail: *nlectc-se@nlectc-se.org*

NLECTC–Rocky Mountain
2050 East Iliff Avenue
Denver, CO 80208
(p) 800–416–8086
(f) 303–871–2500
E-mail: *nlectc@du.edu*

NLECTC–West
c/o The Aerospace Corporation
2350 East El Segundo Boulevard
El Segundo, CA 90245–4691
(p) 888–548–1618
(f) 310–336–2227
E-mail: *nlectc@law-west.org*

NLECTC–Northwest
4000 Old Seward Highway
Suite 301
Anchorage, AK 99503–6068
(p) 866–569–2969
(f) 907–569–6939
E-mail: *nlectc-nw@ctsc.net*

Border Research and Technology Center
1010 Second Avenue
Suite 1920
San Diego, CA 92101–4912
(p) 888–656–2782
(f) 888–660–2782
E-mail: *info@brtc.nlectc.org*

Rural Law Enforcement Technology Center (RULETC)
101 Bulldog Lane
Hazard, KY 41701
Phone: 866–787–2553
Fax: 606–436–6758
E-mail: *ruletc@aol.com*

Office of Law Enforcement Technology Commercialization
2001 Main Street
Suite 500
Wheeling, WV 26003
(p) 888–306–5382
(f) 304–230–2310
E-mail: *oletc@oletc.org*

Office of Law Enforcement Standards
100 Bureau Drive
Stop 8102
Gaithersburg, MD 20899–8102
(p) 301–975–2757
(f) 301–948–0978
E-mail: *oles@nist.gov*

About the Office of Law Enforcement Standards

The Office of Law Enforcement Standards (OLES) was established as a matrix management organization in 1971 through a Memorandum of Understanding between the U.S. Departments of Justice and Commerce based on the recommendations of the President's Commission on Crime. OLES's mission is to apply science and technology to the needs of the criminal justice community, including law enforcement, corrections, forensic science, and the fire service. While its major objective is to develop minimum performance standards, which are promulgated as voluntary national standards, OLES also undertakes studies leading to the publication of technical reports and user guides.

The areas of research investigated by OLES include clothing, communication systems, emergency equipment, investigative aids, protective equipment, security systems, vehicles, weapons, and analytical techniques and standard reference materials used by the forensic science community. The composition of OLES's projects varies depending on priorities of the criminal justice community at any given time and, as necessary, draws on the resources of the National Institute of Standards and Technology.

OLES assists law enforcement and criminal justice agencies in acquiring, on a cost-effective basis, the high-quality resources they need to do their jobs. To accomplish this, OLES:

- Develops methods for testing equipment performance and examining evidentiary materials.
- Develops standards for equipment and operating procedures.
- Develops standard reference materials.
- Performs other scientific and engineering research as required.

Since the program began in 1971, OLES has coordinated the development of nearly 200 standards, user guides, and advisory reports. Topics range from performance parameters of police patrol vehicles, to performance reports on various speed-measuring devices, to soft body armor testing, to analytical procedures for developing DNA profiles.

The application of technology to enhance the efficiency and effectiveness of the criminal justice community continues to increase. The proper adoption of the products resulting from emerging technologies and the assessment of equipment performance, systems, methodologies, etc., used by criminal justice practitioners constitute critical issues having safety and legal ramifications. The consequences of inadequate equipment performance or inadequate test methods can range from inconvenient to catastrophic. In addition, these deficiencies can adversely affect the general population when they increase public safety costs, preclude arrest, or result in evidence found to be inadmissible in court.

TABLE OF CONTENTS

SECTIONS PAGE

TEST EQUIPMENT

The following test equipment is utilized during the acceleration, top speed, braking, and vehicle dynamics portions of the evaluation program.

DATRON TECHNOLOGY, INC., 21654 Melrose Ave., Building 16, Southfield, Michigan 48075

DLS Smart Sensor – Optical non-contact speed and distance sensor

BELL HELMETS, Box 927, Rantol, Illinois 61866

Nascar Helmet – Model MC – 400

AMB i.t. US INC., 1631 Phoenix Blvd., Suite 11, College Park, GA 30349

AMB TranX extended loop decoder

Mains adapter 230 V AC/12 V DC

AMB TranX260 transponders

AMMCO TOOLS, Inc., 2100 Commonwealth Ave., North Chicago, IL 60064

Decelerometer, Model 7350

TEST VEHICLE DESCRIPTIONS AND PHOTOGRAPHS

CHEVROLET IMPALA (9C1)
3.8L SPFI

TEST VEHICLE DESCRIPTION

MAKE Chevrolet	**MODEL** Impala 9C1		**SALES CODE NO.** 1WL19		
ENGINE DISPLACEMENT	**CUBIC INCHES** 231		**LITERS** 3.8		
FUEL SYSTEM	Sequential Port Fuel Injection		**EXHAUST** Single		
HORSEPOWER (SAENET)	200 @ 5200 RPM		**ALTERNATOR** 125 amp.		
TORQUE	220 ft. lbs. @ 4000 RPM		**BATTERY** 690 cca.		
COMPRESSION RATIO	9.4:1				
TRANSMISSION	**MODEL** 4T65E	**TYPE** 4-Speed automatic			
	LOCKUP TORQUE CONVERTER? Yes				
	OVERDRIVE? Yes				
AXLE RATIO	3.29:1				
STEERING	Power Rack and Pinion				
TURNING CIRCLE (CURB TO CURB)	38.0 Feet				
TIRE SIZE, LOAD & SPEED RATING	P225/60R16 Goodyear Eagle RSA				
SUSPENSION TYPE (FRONT)	Independent McPherson strut, coil springs, & stabilizer bar				
SUSPENSION TYPE (REAR)	Independent Tri-link coil spring over strut & stabilizer bar				
GROUND CLEARANCE, MINIMUM	6.1 in.	**LOCATION** Engine Cradle			
BRAKE SYSTEM	Power, dual hydraulic, anti-lock				
BRAKES, FRONT	**TYPE** Vented disc		**SWEPT AREA** 235.4 sq. in.		
BRAKES, REAR	**TYPE** Solid disc		**SWEPT AREA** 160.3 sq. in.		
FUEL CAPACITY	**GALLONS** 17.0		**LITERS** 64.3		
GENERAL MEASUREMENTS	**WHEELBASE** 110.5 in.		**LENGTH** 200.1 in.		
	TEST WEIGHT 3583 lbs.		**HEIGHT** 57.3 in.		
HEADROOM	**FRONT** 39.2 in.		**REAR** 36.8 in.		
LEGROOM	**FRONT** 42.2 in.		**REAR** 38.4 in.		
SHOULDER ROOM	**FRONT** 59.0 in.		**REAR** 58.9 in.		
HIPROOM	**FRONT** 56.5. in.		**REAR** 55.7 in.		
INTERIOR VOLUME	**FRONT** 56.5 cu. ft.		**REAR** 48.2 cu. ft.		
	COMB 104.7 cu. ft.		**TRUNK** 18.6 cu. ft.*		
EPA MILEAGE EST. (MPG)	**CITY** 20	**HIGHWAY** 29	**COMBINED** 23		

*Compact spare

DODGE INTREPID
3.5L SPFI

TEST VEHICLE DESCRIPTION

MAKE Dodge	**MODEL** Intrepid		**SALES CODE NO.** 25E		
ENGINE DISPLACEMENT	**CUBIC INCHES** 214		**LITERS** 3.5		
FUEL SYSTEM	Sequential Port Fuel Injection		**EXHAUST** Single		
HORSEPOWER (SAENET)	242 @ 6400 RPM		**ALTERNATOR** 160 amp.		
TORQUE	248 ft. lbs. @ 3950 RPM		**BATTERY** 600 cca.		
COMPRESSION RATIO	9.9:1				
TRANSMISSION	**MODEL** 42LE	**TYPE** 4-Speed electronic automatic			
	LOCKUP TORQUE CONVERTER? Yes				
	OVERDRIVE? Yes				
AXLE RATIO	3.66:1				
STEERING	Power Rack and Pinion				
TURNING CIRCLE (CURB TO CURB)	37.6 Feet				
TIRE SIZE, LOAD & SPEED RATING	P225/60R16 Goodyear Eagle RS-A				
SUSPENSION TYPE (FRONT)	Independent McPherson strut, coil springs & sway bar				
SUSPENSION TYPE (REAR)	Independent McPherson strut & sway bar				
GROUND CLEARANCE, MINIMUM	5.7 in.	**LOCATION** Sway bar			
BRAKE SYSTEM	Power, single piston, anti-lock				
BRAKES, FRONT	**TYPE** Vented disc		**SWEPT AREA** 287.2 sq. in.		
BRAKES, REAR	**TYPE** Solid disc		**SWEPT AREA** 184.6 sq. in.		
FUEL CAPACITY	**GALLONS** 17.0		**LITERS** 64.4		
GENERAL MEASUREMENTS	**WHEELBASE** 113.0 in.		**LENGTH** 203.7 in.		
	TEST WEIGHT 3567 lbs.		**HEIGHT** 55.9 in.		
HEADROOM	**FRONT** 38.3 in.		**REAR** 37.5 in.		
LEGROOM	**FRONT** 42.2 in.		**REAR** 39.1 in.		
SHOULDER ROOM	**FRONT** 59.0 in.		**REAR** 58.1 in.		
HIPROOM	**FRONT** 56.3 in.		**REAR** 56.6 in.		
INTERIOR VOLUME	**FRONT** 55.0 cu. ft.		**REAR** 49.5 cu. ft.		
	COMB 104.5 cu. ft.		**TRUNK** 18.4 cu. ft.		
EPA MILEAGE EST. (MPG)	**CITY** 19	**HIGHWAY** 27	**COMBINED** 22		

FORD POLICE INTERCEPTOR
4.6L SPFI

TEST VEHICLE DESCRIPTION

MAKE Ford	**MODEL** Police Interceptor		**SALES CODE NO.** P71		
ENGINE DISPLACEMENT	**CUBIC INCHES** 281		**LITERS** 4.6		
FUEL SYSTEM	Sequential Port Fuel Injection		**EXHAUST** Dual		
HORSEPOWER (SAENET)	239 @ 4750 RPM		**ALTERNATOR** 135 amp.		
TORQUE	287 ft. lbs. @ 4100 RPM		**BATTERY** 750 cca.		
COMPRESSION RATIO	9.4:1				
TRANSMISSION	**MODEL** 4R70W	**TYPE** 4-Speed electronic automatic			
	LOCKUP TORQUE CONVERTER? Yes				
	OVERDRIVE? Yes				
AXLE RATIO	3.27				
STEERING	Power Rack and Pinion, variable ratio				
TURNING CIRCLE (CURB TO CURB)	40.3 Feet				
TIRE SIZE, LOAD & SPEED RATING	P225/60R16 Goodyear Eagle RS-A Plus				
SUSPENSION TYPE (FRONT)	Independent SLA with ball joint & coil spring				
SUSPENSION TYPE (REAR)	4 bar link with Watts Linkage				
GROUND CLEARANCE, MINIMUM	6.0 in.	**LOCATION** Transmission			
BRAKE SYSTEM	Power, dual front piston, single rear piston, 4 circuit and ABS				
BRAKES, FRONT	**TYPE** Vented disc		**SWEPT AREA** 273 sq. in.		
BRAKES, REAR	**TYPE** Vented disc		**SWEPT AREA** 176 sq. in.		
FUEL CAPACITY	**GALLONS** 19.0		**LITERS** 71.9		
GENERAL MEASUREMENTS	**WHEELBASE** 114.7 in.		**LENGTH** 212.0 in.		
	TEST WEIGHT 4155 lbs.		**HEIGHT** 58.5 in.		
HEADROOM	**FRONT** 39.4 in.		**REAR** 38.0 in.		
LEGROOM	**FRONT** 42.5 in.		**REAR** 39.6 in.		
SHOULDER ROOM	**FRONT** 60.8 in.		**REAR** 60.3 in.		
HIPROOM	**FRONT** 57.1 in.		**REAR** 59.0 in.		
INTERIOR VOLUME	**FRONT** 58.2 cu. ft.		**REAR** 51.1 cu. ft.		
	COMB 109.3 cu. ft.		**TRUNK** 20.6 cu. ft.		
EPA MILEAGE EST. (MPG)	**CITY** 15	**HIGHWAY** 22	**COMBINED** 18		

AM GENERAL HUMMER
6.5L TURBO DIESEL

TEST VEHICLE DESCRIPTION

MAKE AM General	**MODEL** Hummer		**SALES CODE NO.** HMCS		
ENGINE DISPLACEMENT	**CUBIC INCHES** 396		**LITERS** 6.5		
FUEL SYSTEM	Turbo Diesel		**EXHAUST** Single		
HORSEPOWER (SAENET)	195 @ 3400 RPM		**ALTERNATOR** 124 amp.		
TORQUE	430 ft. lbs. @ 1800 RPM		**BATTERY** Dual 800 cca.		
COMPRESSION RATIO	20.2:1				
TRANSMISSION	**MODEL** 4L80E		**TYPE** 4-Speed electronic automatic		
	LOCKUP TORQUE CONVERTER? Yes				
	OVERDRIVE? Yes				
AXLE RATIO	4:92 Front & rear				
STEERING	Power assisted variable ratio				
TURNING CIRCLE (CURB TO CURB)	53.0 Feet				
TIRE SIZE, LOAD & SPEED RATING	37 X 12.50R17LT M/S Goodyear Wrangler GSA				
SUSPENSION TYPE (FRONT)	Ind. double A frame, coil springs, axle shocks				
SUSPENSION TYPE (REAR)	Ind. double A frame, coil springs, axle shocks				
GROUND CLEARANCE, MINIMUM	16.0 in.	**LOCATION** Axle housing			
BRAKE SYSTEM	Power 4 wheel anti-lock disc				
BRAKES, FRONT	**TYPE** Disc		**SWEPT AREA** 229 sq. in.		
BRAKES, REAR	**TYPE** Disc		**SWEPT AREA** 229 sq. in.		
FUEL CAPACITY	**GALLONS** 42.0		**LITERS** 159.0		
GENERAL MEASUREMENTS	**WHEELBASE** 130.0 in.		**LENGTH** 184.5 in.*		
	TEST WEIGHT 7660 lbs.		**HEIGHT** 75.0 in.		
HEADROOM	**FRONT** 37.5 in.		**REAR** 36.7 in.		
LEGROOM	**FRONT** 36.0 in.		**REAR** 36.0 in.		
SHOULDER ROOM	**FRONT** 78.8 in.		**REAR** 78.8 in.		
HIPROOM	**FRONT** 50.6 in.		**REAR** 50.6 in.		
INTERIOR VOLUME	**FRONT** 61.6 cu. ft.		**REAR** 61.6 cu. ft.		
	COMB 123.2 cu. ft.		**TRUNK** 57.85 cu. ft.		
EPA MILEAGE EST. (MPG)	**CITY** 9	**HIGHWAY** 10		**COMBINED** 9**	

*With winch.
**Class III vehicle – not tested to normal EPA requirements.

TEST VEHICLE DESCRIPTION SUMMARY

	Chevrolet Impala	Dodge Intrepid
ENGINE DISPLACEMENT – CU. IN.	231	214
ENGINE DISPLACEMENT – LITERS	3.8	3.5
ENGINE FUEL SYSTEM	SPFI	SPFI
HORSEPOWER (SAE NET)	200	242
TORQUE (FT. LBS.)	220	248
COMPRESSION RATIO	9.4:1	9.9:1
AXLE RATIO	3.29:1	3.66:1
TURNING CIRCLE – FT. CURB TO CURB	38.0	37.6
TRANSMISSION	4 Speed elec. auto	4 Speed elec. auto
TRANSMISSION MODEL NUMBER	4T65E	42LE
LOCKUP TORQUE CONVERTER	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes
TIRE SIZE	P225/60R	P225/60R
WHEEL RIM SIZE – INCHES	16	16
GROUND CLEARANCE – INCHES	6.1	5.7
BRAKE SYSTEM	Power, ABS	Power, ABS
BRAKES – FRONT TYPE	Vented Disc	Vented Disc
BRAKES – REAR TYPE	Solid Disc	Solid Disc
FUEL CAPACITY – GALLONS	17.0	17.0
FUEL CAPACITY – LITERS	64.3	64.4
OVERALL LENGTH – INCHES	200.1	203.7
OVERALL HEIGHT – INCHES	57.3	55.9
TEST WEIGHT – LBS.	3583	3567
WHEELBASE – INCHES	110.5	113.0
HEADROOM FRONT – INCHES	39.2	38.3
HEADROOM REAR – INCHES	36.8	37.5
LEGROOM FRONT – INCHES	42.2	42.2
LEGROOM REAR – INCHES	38.4	39.1
SHOULDER ROOM FRONT – INCHES	59.0	59.0
SHOULDER ROOM REAR – INCHES	58.9	58.1
HIPROOM FRONT – INCHES	56.5	56.3
HIPROOM REAR – INCHES	55.7	56.6
INTERIOR VOLUME FRONT – CU. FT.	56.5	55.0
INTERIOR VOLUME REAR – CU. FT.	48.2	49.5
INTERIOR VOLUME COMB. – CU. FT.	104.7	104.5
TRUNK VOLUME – CU. FT.	18.6	18.4
EPA MILEAGE – CITY – MPG	20	19.8
EPA MILEAGE – HIGHWAY – MPG	29	27
EPA MILEAGE – COMBINED – MPG	23	22

TEST VEHICLE DESCRIPTION SUMMARY

	Ford 2003 Police Interceptor	AM General Hummer
ENGINE DISPLACEMENT – CU. IN.	281	396
ENGINE DISPLACEMENT – LITERS	4.6	6.5
ENGINE FUEL SYSTEM	SPFI	Turbo Diesel
HORSEPOWER (SAE NET)	239	195
TORQUE (FT. LBS.)	287	430
COMPRESSION RATIO	9.4:1	20.2:1
AXLE RATIO	3.27	4:92
TURNING CIRCLE – FT. CURB TO CURB	40.3	53.0
TRANSMISSION	4 Speed elec. auto	4 Speed elec. auto
TRANSMISSION MODEL NUMBER	4R70W	4L80E
LOCKUP TORQUE CONVERTER	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes
TIRE SIZE	P225/60R	37X12.50R
WHEEL RIM SIZE – INCHES	16	17
GROUND CLEARANCE – INCHES	6.0	16.0
BRAKE SYSTEM	Power, ABS	Power, ABS
BRAKES – FRONT TYPE	Vented Disc	Disc
BRAKES – REAR TYPE	Vented Disc	Disc
FUEL CAPACITY – GALLONS	19.0	42.0
FUEL CAPACITY – LITERS	71.9	159.0
OVERALL LENGTH – INCHES	212.0	184.5*
OVERALL HEIGHT – INCHES	58.5	75.0
TEST WEIGHT – LBS.	4154	7660
WHEELBASE – INCHES	114.7	130.0
HEADROOM FRONT – INCHES	39.4	37.5
HEADROOM REAR – INCHES	38.0	36.7
LEGROOM FRONT – INCHES	42.5	36.0
LEGROOM REAR – INCHES	39.6	36.0
SHOULDER ROOM FRONT – INCHES	60.8	78.8
SHOULDER ROOM REAR – INCHES	60.3	78.8
HIPROOM FRONT – INCHES	57.1	50.6
HIPROOM REAR – INCHES	59.0	50.6
INTERIOR VOLUME FRONT – CU. FT.	58.2	61.6
INTERIOR VOLUME REAR – CU. FT.	51.1	61.6
INTERIOR VOLUME COMB. – CU. FT.	109.3	123.2
TRUNK VOLUME – CU. FT.	20.6	57.85
EPA MILEAGE – CITY – MPG	15	9
EPA MILEAGE – HIGHWAY – MPG	22	10
EPA MILEAGE – COMBINED – MPG	18	9**

*With winch.
**Class III vehicle – not tested to normal EPA requirements.

VEHICLE DYNAMICS TESTING

VEHICLE DYNAMICS TESTING

TEST OBJECTIVE

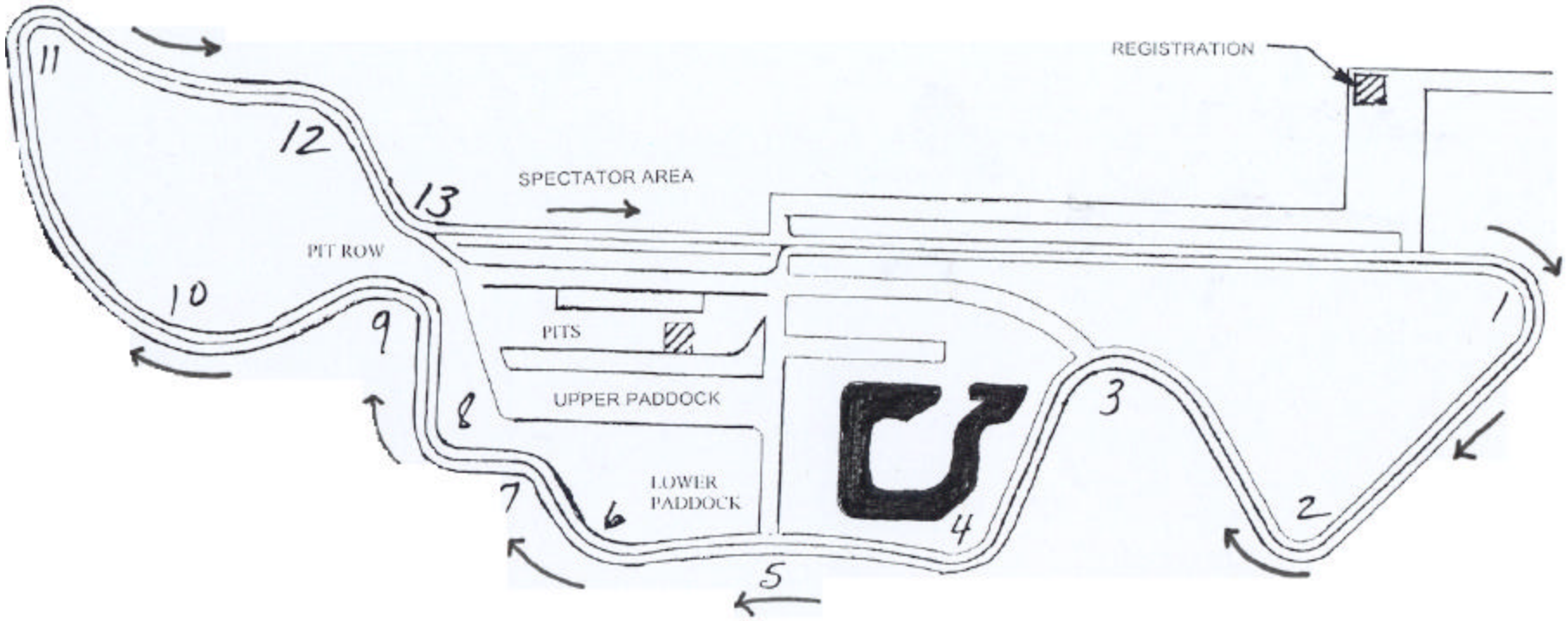
Determine each vehicle's high-speed pursuit or emergency handling characteristics and performance in comparison to the other vehicles in the test group. The course used is a 2-mile road-racing type configuration, containing hills, curves, and corners. The course simulates actual conditions encountered in pursuit or emergency driving situations in the field, with the exception of other traffic. The evaluation will be a true test of the success or failure of the vehicle manufacturers to offer vehicles that provide the optimum balance between handling (suspension components), acceleration (usable horsepower), and braking characteristics.

TEST METHODOLOGY

All vehicles will be driven over the course a total of 32 timed laps, using four separate drivers, each driving an 8 lap series. The final score for the vehicle will be the combined average (from the 4 drivers) of the 5 fastest laps for each driver during the 8 lap series.

Grattan Raceway Park

7201 Lessiter
Belding, Michigan 48809



Arrows indicate Michigan State Police Road Test Course and Direction of Travel.

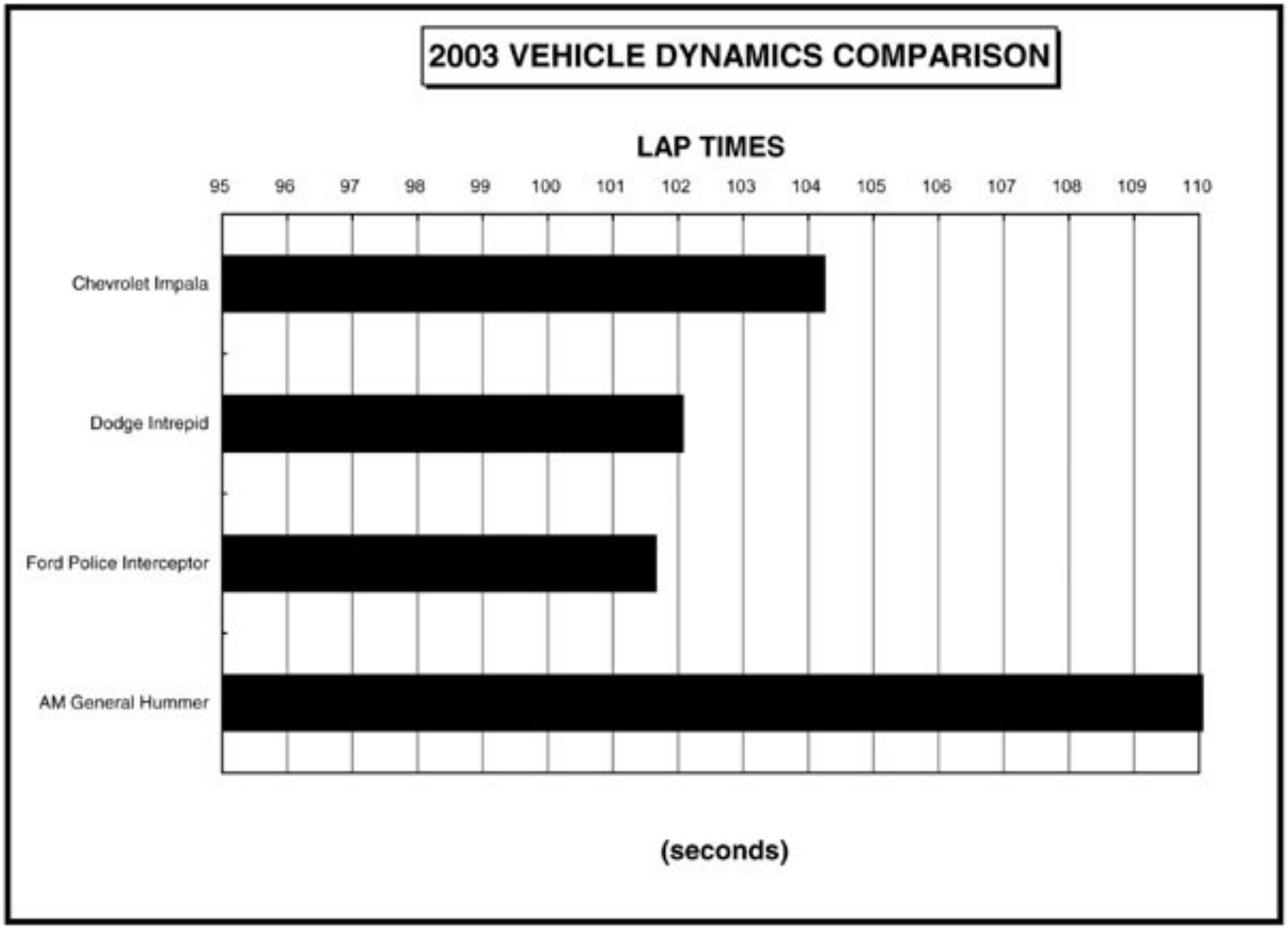
VEHICLE DYNAMICS TESTING

VEHICLES	DRIVERS	LAP 1	LAP 2	LAP 3	LAP 4	LAP 5	AVERAGE
Chevrolet	WILSON	1:44.03	1:44.03	1:44.16	1:44.28	1:44.30	1:44.16
Impala 9C1*	SCHUTTER	1:44.04	1:44.12	1:44.19	1:44.46	1:44.57	1:44.28
3.8L	FLEGEL	1:43.73	1:43.99	1:44.43	1:44.46	1:44.49	1:44.22
SPFI	CLARK	1:43.95	1:44.13	1:44.45	1:44.45	1:44.66	1:44.33
Overall Average							**1:44.25**
Dodge Intrepid*	WILSON	1:41.74	1:41.90	1:42.18	1:42.49	1:42.50	1:42.16
3.5L	SCHUTTER	1:41.59	1:41.27	1:41.90	1:41.66	1:41.34	1:41.55
SPFI	FLEGEL	1:42.19	1:42.23	1:42.35	1:42.71	1:43.05	1:42.51
	CLARK	1:41.68	1:41.96	1:41.96	1:42.00	1:42.61	1:42.04
Overall Average							**1:42.07**
Ford Police	WILSON	1:41.88	1:42.00	1:42.01	1:42.04	1:42.07	1:42.00
Interceptor	SCHUTTER	1:41.09	1:41.39	1:41.52	1:41.64	1:41.91	1:41.51
4.6L SPFI	FLEGEL	1:41.33	1:41.41	1:41.65	1:41.66	1:41.85	1:41.58
	CLARK	1:41.13	1:41.23	1:41.53	1:41.88	1:41.90	1:41.53
Overall Average							**1:41.66**
G.M. Hummer*	WILSON	2:01.60	2:01.68	2:01.77	2:01.82	2:01.98	2:01.77
6.5L Turbo	SCHUTTER						
Diesel	FLEGEL	2:00.10	2:00.53	2:00.62	2:00.69	2:00.83	2:00.55
	CLARK	2:00.01	2:00.17	2:00.32	2:00.43	2:00.47	2:00.28
Overall Average							**2:00.87**

*Please see preface.
**All vehicles were driven over the course a total of 32 timed laps, using four separate drivers, each driving an 8 lap series. The final score for the vehicle is the combined average (from the 4 drivers) of the 5 fastest laps for each driver during the 8 lap series.

VEHICLE DYNAMICS IN PROGRESS

Ford, Chevrolet & Chrysler on the high-speed handling course.



Note: The Hummer lap time was 120.87 seconds.

ACCELERATION, TOP SPEED AND BRAKE TESTING

ACCELERATION AND TOP SPEED TESTING

ACCELERATION TEST OBJECTIVE

Determine the ability of each test vehicle to accelerate from a standing start to 60 mph, 80 mph, and 100 mph, and determine the distance to reach 110 mph and 120 mph.

ACCELERATION TEST METHODOLOGY

Using a DLS Smart Sensor – Optical non-contact Speed and Distance Sensor in conjunction with a lap top computer, each vehicle is driven through four acceleration sequences, two northbound and two southbound, to allow for wind direction. The four resulting times for each target speed are averaged and the average times used to derive scores on the competitive test for acceleration.

TOP SPEED TEST OBJECTIVE

Determine the actual top speed attainable by each test vehicle within a distance of 14 miles from a standing start.

TOP SPEED TEST METHODOLOGY

Following the fourth acceleration run, each test vehicle will continue to accelerate to the top speed attainable within 14 miles from the start of the run. The highest speed attained within the 14-mile distance will be the vehicle's score on the competitive test for top speed.

BRAKE TESTING

BRAKE TEST OBJECTIVE

Determine the deceleration rate attained by each test vehicle on twelve 60 – 0 mph impending skid (threshold) stops, with ABS in operation if the vehicle is so equipped. Each vehicle will be scored on the average deceleration rate it attains.

BRAKE TEST METHODOLOGY

Each vehicle will make two decelerations at specific predetermined points on the test road from 90 – 0 mph at 22 ft/s^2, with the driver using a decelerometer to maintain the deceleration rate. Immediately after these "heat-up" stops are completed, the vehicle will be turned around and will make six measured 60 – 0 mph impending skid (threshold) stops with ABS in operation, if so equipped, at specific predetermined points. Following a four 4-minute heat soak, the entire sequence will be repeated. The exact initial velocity at the beginning of each of the 60 – 0 mph decelerations, and the exact distance required to make each stop will be recorded by means of a non contact optical sensor in conjunction with electronic speed and distance meters. The data resulting from the twelve total stops will be used to calculate the average deceleration rate which is the vehicle's score for this test.

DECELERATION RATE FORMULA

$$\text{Deceleration Rate (DR)} = \frac{\text{Initial Velocity*(IV) squared}}{\text{2 times Stopping Distance (SD)}} = \frac{(IV)^2}{2(SD)}$$

EXAMPLE:

Initial Velocity = 89.175 ft/s (60.8 mph x 1.4667*)
Stopping Distance = 171.4 ft.

$$DR = \frac{(IV)^2}{2(SD)} = \frac{(89.175)^2}{2(171.4)} = \frac{7952.24}{342.8} = 23.198 \text{ ft/s}^2$$

Once a vehicle's average deceleration rate has been determined, it is possible to calculate the stopping distance from any given speed by utilizing the following formula:

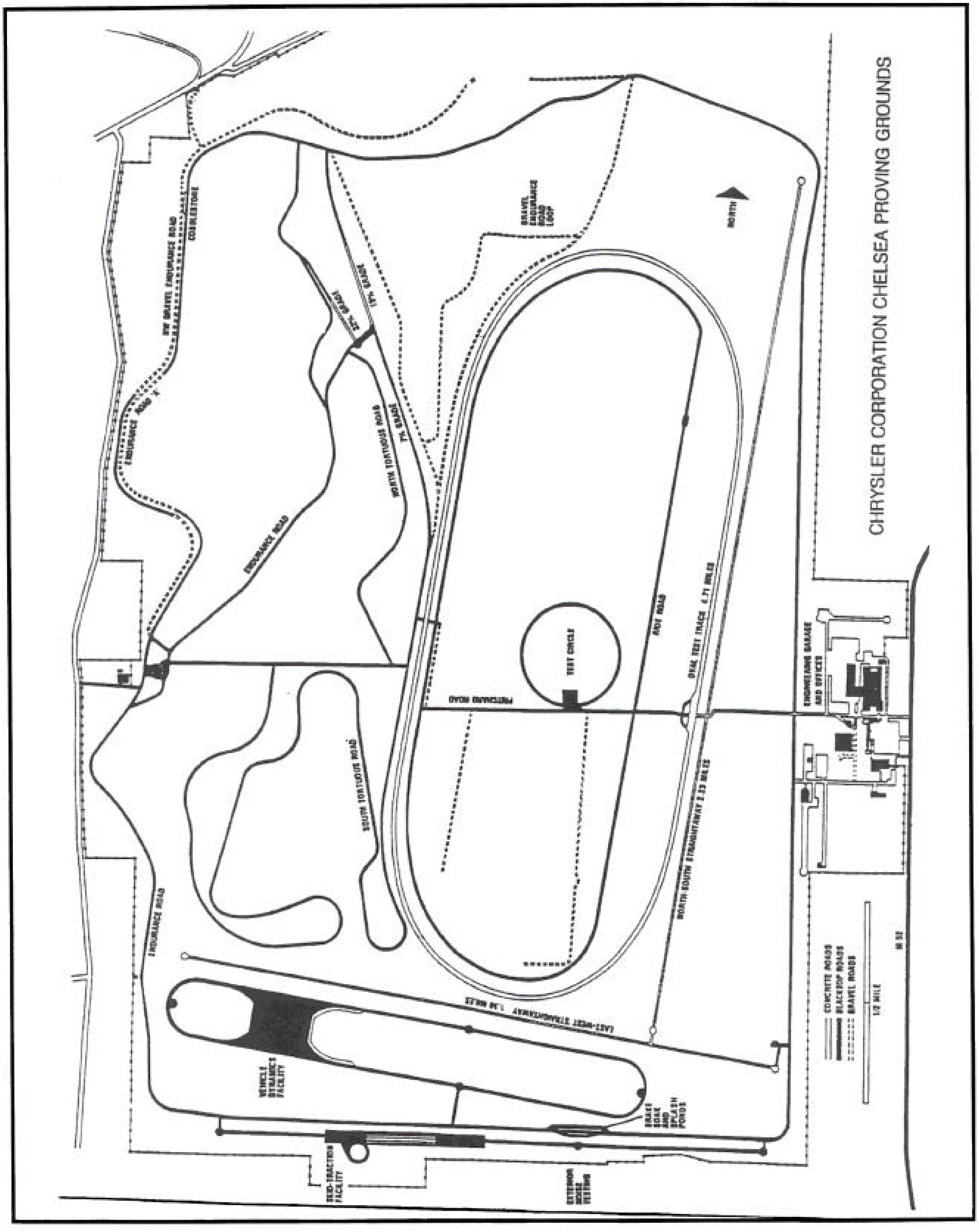
Select a speed; translate that speed into feet per second; square the feet per second figure by multiplying it by itself; divide the resultant figure by 2; divide the remaining figure by the average deceleration rate of the vehicle in question.

EXAMPLE:

60 mph = 88.002 ft/s x 88.002 = 7744.352 / 2 = 3872.176 / 23.198 ft/s^2 = 166.9 ft.

*Initial velocity must be expressed in terms of feet per second, with 1 mile per hour being equal to 1.4667 feet per second.

BRAKE TESTING


CHRYSLER CORPORATION CHELSEA PROVING GROUNDS
NORTH
TEST CIRCLE

SUMMARY OF ACCELERATION, TOP SPEED, AND BRAKE TESTING

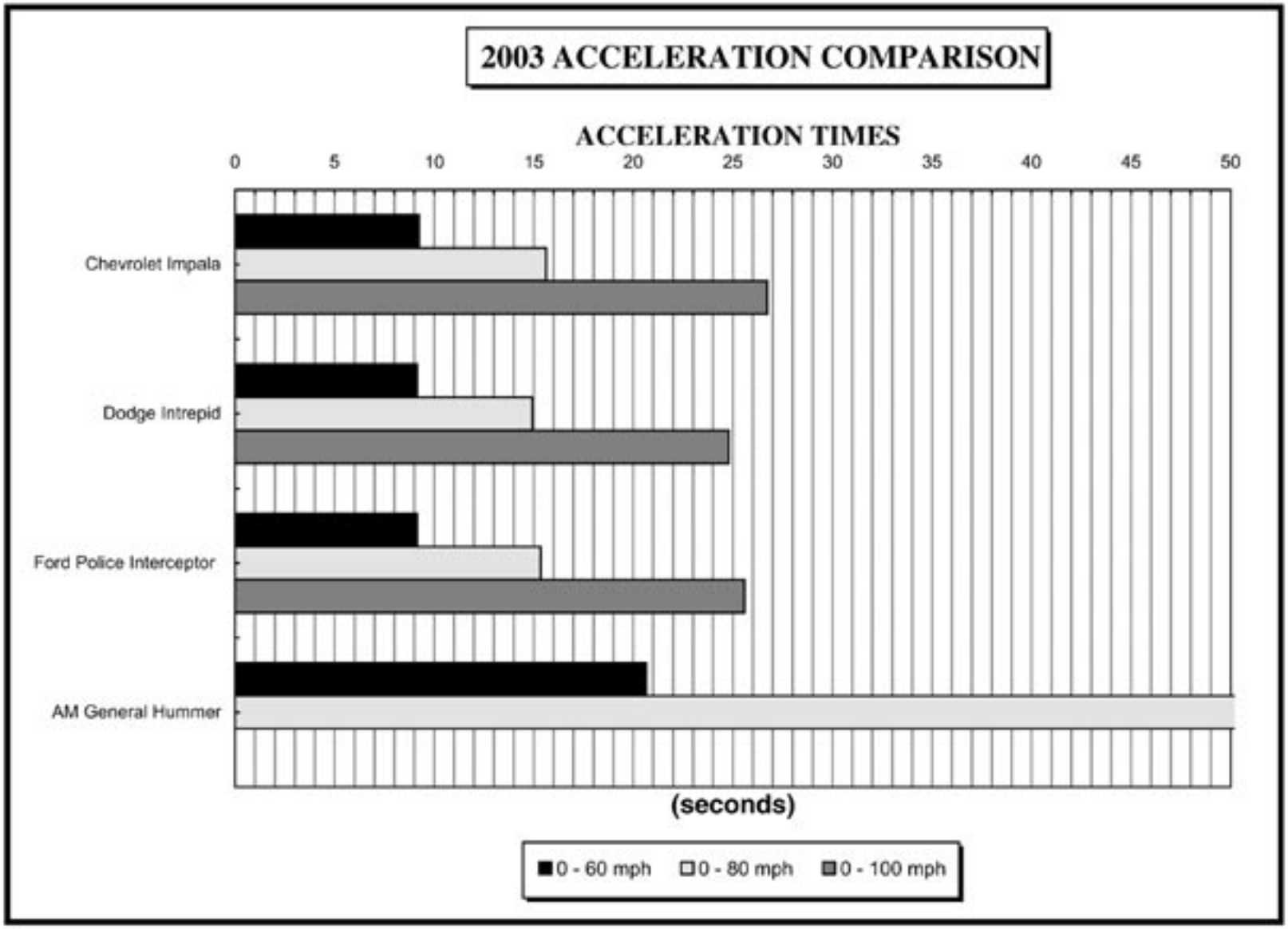
ACCELERATION*		Chevrolet Impala 3.8L SPFI	Dodge Intrepid 3.5L SPFI
0 – 20 mph	(sec.)	1.96	2.14
0 – 30 mph	(sec.)	3.22	3.42
0 – 40 mph	(sec.)	4.66	4.87
0 – 50 mph	(sec.)	6.70	6.81
0 – 60 mph	(sec.)	9.25	9.14
0 – 70 mph	(sec.)	12.09	11.82
0 – 80 mph	(sec.)	15.63	14.93
0 – 90 mph	(sec.)	20.69	19.41
0 – 100 mph	(sec.)	26.73	24.80
TOP SPEED	(mph)	126**	136**
DISTANCE TO REACH			
110 mph	(miles)	.70	.63
120 mph	(miles)	1.10	.91
QUARTER MILE			
Time	(sec.)	17.02	16.98
Speed	(miles)	83.20	85.08
		ABS	**ABS**
BRAKING – PHASE I			
Average Deceleration Rate	(ft/s^2)	29.04	26.57
BRAKING – PHASE II			
Average Deceleration Rate	(ft/s^2)	29.21	26.81
BRAKING – FINAL SCORE * **			
Deceleration Rate	**(ft/s^2)**	**29.12**	**26.69**
Projected Stopping Distance from 60 mph	(feet)	133.0	145.1

* Four run average.
**Vehicle equipped with an electronic speed limiter.
***See individual brake testing pages for the Michigan State Police minimum requirements.

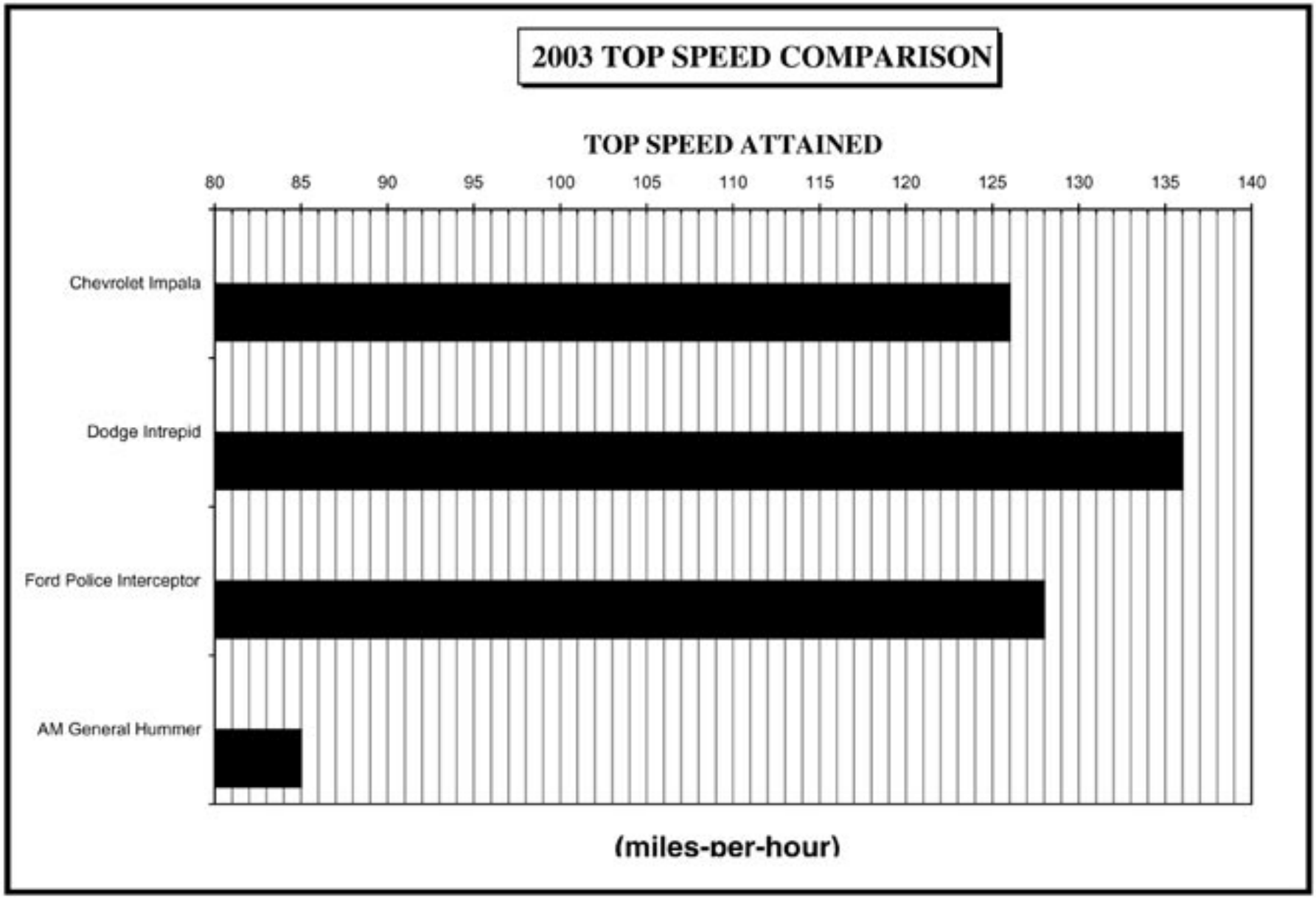
SUMMARY OF ACCELERATION, TOP SPEED, AND BRAKE TESTING

ACCELERATION*		Ford Police Interceptor 4.6L SPFI	AM General Hummer 6.5L Turbo Diesel
0 – 20 mph	(sec.)	2.01	2.90
0 – 30 mph	(sec.)	3.40	5.46
0 – 40 mph	(sec.)	4.86	9.05
0 – 50 mph	(sec.)	6.72	14.24
0 – 60 mph	(sec.)	9.14	20.65
0 – 70 mph	(sec.)	11.80	31.54
0 – 80 mph	(sec.)	15.35	54.77
0 – 90 mph	(sec.)	19.91	N/A
0 – 100 mph	(sec.)	25.58	N/A
TOP SPEED	(mph)	128**	85**
DISTANCE TO REACH			
110 mph	(miles)	.66	N/A
120 mph	(miles)	1.04	N/A
QUARTER MILE			
Time	(sec.)	16.99	22.11
Speed	(miles)	84.10	61.80
		ABS	**ABS**
BRAKING – PHASE I			
Average Deceleration Rate	(ft/s^2)	26.07	22.71
BRAKING – PHASE II			
Average Deceleration Rate	(ft/s^2)	26.03	22.81
BRAKING – FINAL SCORE * **			
Deceleration Rate	**(ft/s^2)**	**26.05**	**22.76**
Projected Stopping Distance from 60 mph	(feet)	148.6	170.1

*Four run average.
**Vehicle equipped with an electronic speed limiter.
***See individual brake testing pages for the Michigan State Police minimum requirements.
N/A: Vehicle did not achieve or exceed speeds of 100 mph.



Note: The Hummer acceleration time was 54.77 seconds.


2003 TOP SPEED COMPARISON
TOP SPEED ATTAINED
80
85
90
95
100
105
110
115
120
125
130
135
140
Chevrolet Impala
Dodge Intrepid
Ford Police Interceptor
AM General Hummer
(miles-per-hour)

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

MAKE & MODEL: Chevrolet Impala 3.8L SPFI **BEGINNING TIME:** 10:59 a.m.

WIND VELOCITY: 8.2 mph **WIND DIRECTION:** 186° **TEMPERATURE:** 69.5°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.6 sec.**	9.55	9.13	9.23	9.10	**9.25**
0 – 80	**16.4 sec.**	16.16	15.33	15.66	15.38	**15.63**
0 – 100	**27.1 sec.**	27.84	26.01	27.08	25.97	**26.73**

DISTANCE TO REACH: 110 MPH .70 mile **120 MPH** 1.10 mile

TOP SPEED ATTAINED: 126 mph

MAKE & MODEL: Dodge Intrepid 3.5L SPFI **BEGINNING TIME:** 11:27 a.m.

WIND VELOCITY: 7.2 mph **WIND DIRECTION:** 209° **TEMPERATURE:** 71.2°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.6 sec.**	9.25	9.14	9.09	9.08	**9.14**
0 – 80	**16.4 sec.**	14.96	15.05	14.98	14.71	**14.93**
0 – 100	**27.1 sec.**	25.44	24.53	24.92	24.31	**24.80**

DISTANCE TO REACH: 110 MPH .63 mile **120 MPH** .91 mile

TOP SPEED ATTAINED: 136 mph

*Michigan State Police minimum requirement.

ACCELERATION AND TOP SPEED TESTS

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

MAKE & MODEL: Ford Police Interceptor 4.6L SPFI **BEGINNING TIME:** 10:32 a.m.

WIND VELOCITY: 7.4 mph **WIND DIRECTION:** 202° **TEMPERATURE:** 67.8°

ACCELERATION

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**9.6 sec.**	9.25	9.07	9.18	9.07	**9.14**
0 – 80	**16.4 sec.**	15.52	15.39	15.31	15.19	**15.35**
0 – 100	**27.1 sec.**	26.03	25.18	25.76	25.34	**25.58**

DISTANCE TO REACH: 110 MPH .66 mile **120 MPH** 1.04 mile

TOP SPEED ATTAINED: 128 mph

MAKE & MODEL: AM General Hummer 6.5L Turbo Diesel **BEGINNING TIME:** 4:05 p.m.

WIND VELOCITY: 6.1 mph **WIND DIRECTION:** 260° **TEMPERATURE:** 79.4°

ACCELERATION

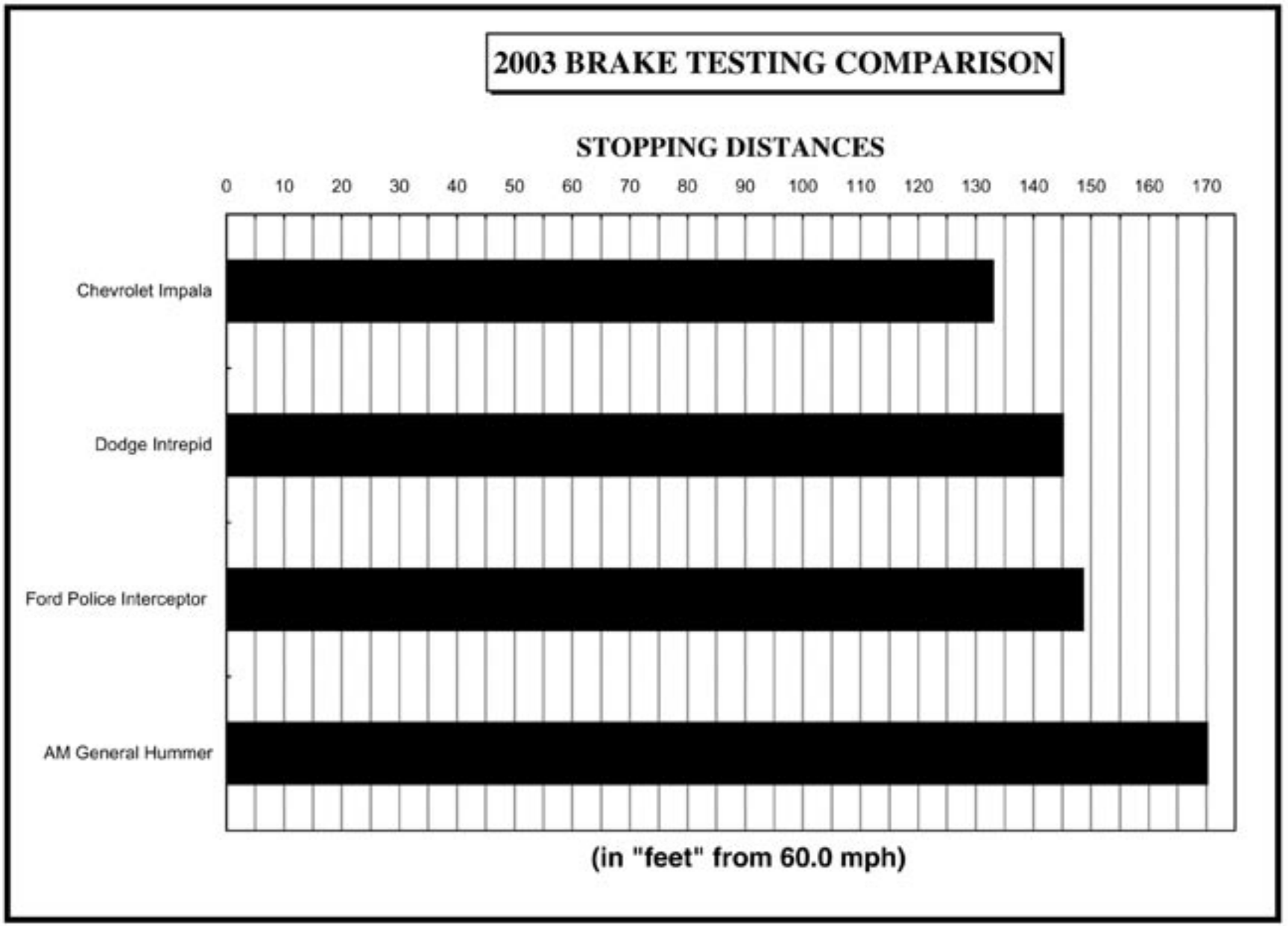
SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	**N/A**	19.93	20.53	21.57	20.57	**20.65**
0 – 80	**N/A**	53.21	51.24	63.24	51.38	**54.77**
0 – 100	**N/A**	N/A	N/A	N/A	N/A	**N/A**

DISTANCE TO REACH: 110 MPH N/A **120 MPH** N/A

TOP SPEED ATTAINED: 85 mph

*Michigan State Police minimum requirement.

BRAKE TESTING (CONTINUED)


2003 BRAKE TESTING COMPARISON
STOPPING DISTANCES
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
Chevrolet Impala
Dodge Intrepid
Ford Police Interceptor
AM General Hummer
(in "feet" from 60.0 mph)

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 1:42 p.m. **TEMPERATURE:** 77.3°F

MAKE and MODEL: Chevrolet Impala 9C1 3.8L **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.3 mph	129.7 feet	29.16 ft/s^2
Stop #2	59.8 mph	131.8 feet	29.18 ft/s^2
Stop #3	59.6 mph	133.4 feet	28.64 ft/s^2
Stop #4	60.1 mph	133.7 feet	29.06 ft/s^2
Stop #5	59.7 mph	130.2 feet	29.44 ft/s^2
Stop #6	60.1 mph	135.2 feet	28.74 ft/s^2

AVERAGE DECELERATION RATE: 29.04 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.7 mph	135.2 feet	28.35 ft/s^2
Stop #2	60.2 mph	134.6 feet	28.96 ft/s^2
Stop #3	59.0 mph	126.4 feet	29.62 ft/s^2
Stop #4	59.8 mph	131.8 feet	29.18 ft/s^2
Stop #5	59.7 mph	129.8 feet	29.53 ft/s^2
Stop #6	59.7 mph	129.6 feet	29.58 ft/s^2

AVERAGE DECELERATION RATE: 29.21 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	No
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 29.12 ft/s^2

Michigan State Police minimum requirement – 25.79 ft/s^2

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 1:04 p.m. **TEMPERATURE:** 76.5°F

MAKE and MODEL: Dodge Intrepid 3.5L **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.3 mph	150.6 feet	25.97 ft/s^2
Stop #2	59.9 mph	144.3 feet	26.74 ft/s^2
Stop #3	59.6 mph	144.2 feet	26.50 ft/s^2
Stop #4	59.9 mph	144.5 feet	26.71 ft/s^2
Stop #5	60.0 mph	147.1 feet	26.32 ft/s^2
Stop #6	59.4 mph	139.5 feet	27.21 ft/s^2

AVERAGE DECELERATION RATE: 26.57 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.8 mph	149.0 feet	25.81 ft/s^2
Stop #2	60.2 mph	151.3 feet	25.76 ft/s^2
Stop #3	59.8 mph	138.9 feet	27.69 ft/s^2
Stop #4	59.6 mph	144.5 feet	26.44 ft/s^2
Stop #5	59.7 mph	141.0 feet	27.19 ft/s^2
Stop #6	60.4 mph	140.4 feet	27.95 ft/s^2

AVERAGE DECELERATION RATE: 26.81 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	No
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 26.69 ft/s^2

Michigan State Police minimum requirement – 25.79 ft/s^2

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 12:34 p.m. **TEMPERATURE:** 73.8°F

MAKE and MODEL: Ford Police Interceptor 4.6L **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.7 mph	147.1 feet	26.94 ft/s^2
Stop #2	59.8 mph	147.9 feet	26.01 ft/s^2
Stop #3	59.0 mph	145.4 feet	25.75 ft/s^2
Stop #4	60.4 mph	148.7 feet	26.39 ft/s^2
Stop #5	59.7 mph	150.3 feet	25.51 ft/s^2
Stop #6	59.1 mph	145.3 feet	25.86 ft/s^2

AVERAGE DECELERATION RATE: 26.07 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.1 mph	152.2 feet	25.53 ft/s^2
Stop #2	60.0 mph	152.5 feet	25.39 ft/s^2
Stop #3	59.9 mph	145.1 feet	26.60 ft/s^2
Stop #4	59.9 mph	147.0 feet	26.25 ft/s^2
Stop #5	60.6 mph	150.2 feet	26.30 ft/s^2
Stop #6	60.0 mph	148.2 feet	26.13 ft/s^2

AVERAGE DECELERATION RATE: 26.03 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	No
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 26.05 ft/s^2

Michigan State Police minimum requirement – 25.79 ft/s^2

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 09:26 a.m. **TEMPERATURE:** 64.1°F

MAKE and MODEL: AM General Hummer 6.5L **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.2 mph	174.0 feet	22.40 ft/s^2
Stop #2	59.8 mph	175.0 feet	21.98 ft/s^2
Stop #3	60.0 mph	170.5 feet	22.71 ft/s^2
Stop #4	59.6 mph	162.6 feet	23.50 ft/s^2
Stop #5	58.4 mph	162.4 feet	22.59 ft/s^2
Stop #6	59.9 mph	167.3 feet	23.07 ft/s^2

AVERAGE DECELERATION RATE: 22.71 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.5 mph	171.3 feet	22.23 ft/s^2
Stop #2	59.4 mph	162.4 feet	23.37 ft/s^2
Stop #3	59.9 mph	167.9 feet	22.99 ft/s^2
Stop #4	59.6 mph	169.7 feet	22.51 ft/s^2
Stop #5	59.2 mph	161.3 feet	23.37 ft/s^2
Stop #6	59.7 mph	171.0 feet	22.42 ft/s^2

AVERAGE DECELERATION RATE: 22.81 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	No
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 22.76 ft/s^2

ERGONOMICS AND COMMUNICATIONS EVALUATION

ERGONOMICS AND COMMUNICATIONS

TEST OBJECTIVE

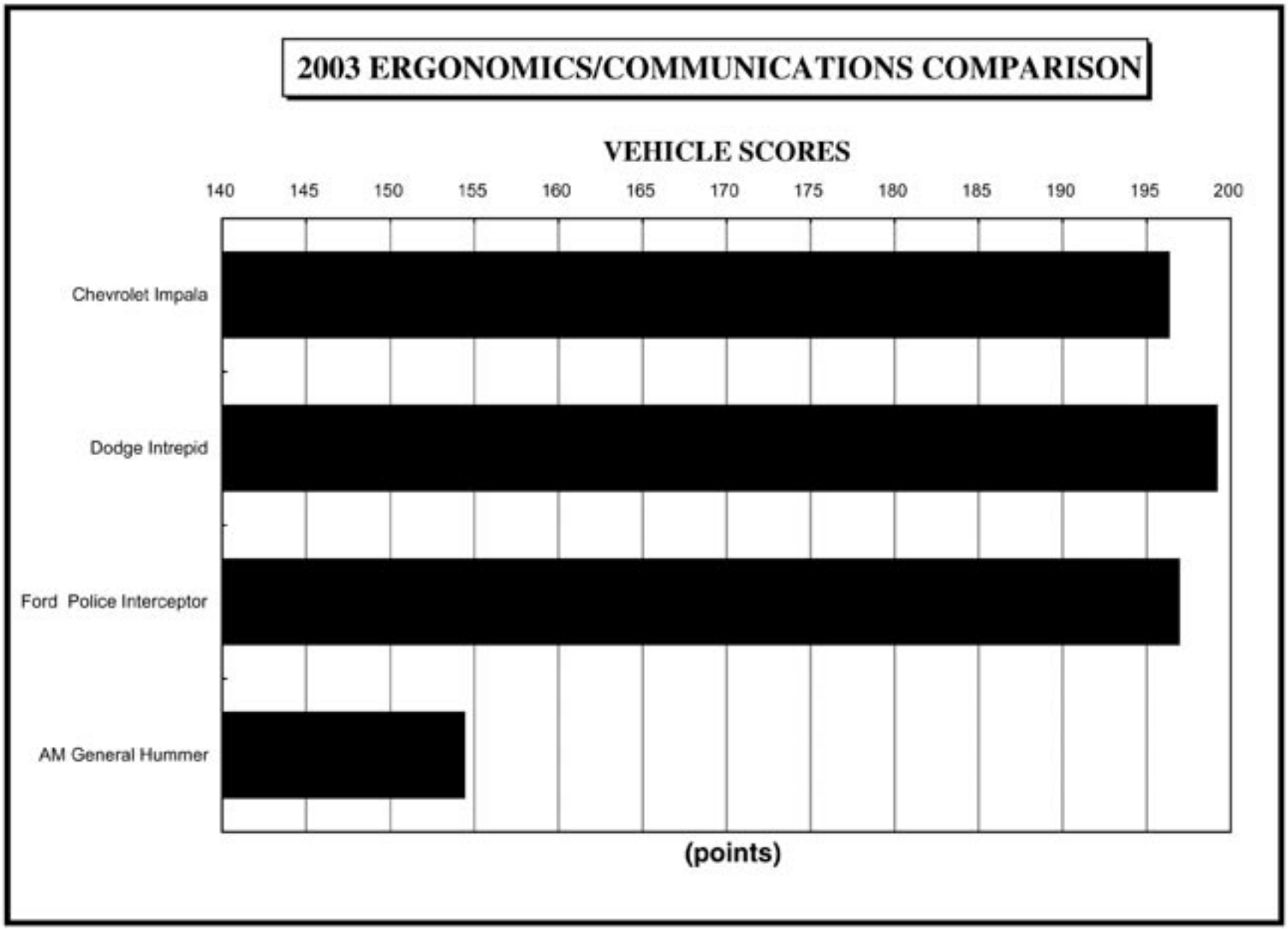
Rate each test vehicle's ability to:

1. Provide a suitable environment for the patrol officer in the performance of his/her assigned tasks.

2. Accommodate the required communications and emergency warning equipment and assess the relative difficulty of such installations.

TEST METHODOLOGY

Utilizing the ergonomics portion of the form, a minimum of four officers (in this case 9) will individually and independently compare and score each test vehicle on the various comfort, instrumentation, and visibility items. The installation and communications portion of the evaluation will be conducted by personnel from the Michigan State Police Communications Division and Vehicle and Travel Services, based upon the relative difficulty of the necessary installations. Each factor will be graded on a 1 to 10 scale, with 1 representing "totally unacceptable," 5 representing "average," and 10 representing "superior." The scores will be averaged to minimize personal prejudice for or against any given vehicle.


2003 ERGONOMICS/COMMUNICATIONS COMPARISON
VEHICLE SCORES
140
145
150
155
160
165
170
175
180
185
190
195
200
Chevrolet Impala
Dodge Intrepid
Ford Police Interceptor
AM General Hummer
(points)

ERGONOMICS AND COMMUNICATIONS

ERGONOMICS	Chevrolet Impala	Dodge Intrepid
FRONT SEAT		
Padding	6.22	7.11
Depth of Bucket Seat	6.22	6.33
Adjustability – Front to Rear	6.33	6.89
Upholstery	6.89	7.11
Bucket Seat Design	6.33	6.33
Headroom	7.56	6.00
Seatbelts	7.89	8.22
Ease of Entry and Exit	6.11	6.22
Overall Comfort Rating	6.63	7.00
REAR SEAT		
Leg room – Front seat back	5.33	7.56
Ease of Entry and Exit	5.22	6.78
INSTRUMENTATION		
Clarity	7.56	8.33
Placement	8.00	7.44
VEHICLE CONTROLS		
Pedals, Size and Position	7.89	6.78
Power Window Switch	8.11	7.89
Inside Door Lock Switch	8.00	8.22
Automatic Door Lock Switch	6.89	7.00
Outside Mirror Controls	7.78	6.44
Steering Wheel, Size, Tilt Release, and Surface	6.89	7.56
Heat/AC Vent Placement and Adjustability	7.33	7.44
VISIBILITY		
Front (Windshield)	7.11	7.44
Rear (Back Window)	4.89	5.78
Left Rear Quarter	6.11	6.33
Right Rear Quarter	5.78	5.78
Outside Rear View Mirrors	6.33	4.11
COMMUNICATIONS		
Dashboard Accessibility	8.92	8.92
Trunk Accessibility	8.89	8.89
Engine Compartment	9.11	9.22
TOTAL SCORES	**196.32**	**199.14**

ERGONOMICS AND COMMUNICATIONS

ERGONOMICS	Ford Police Interceptor	AM General Hummer
FRONT SEAT		
Padding	6.44	5.20
Depth of Bucket Seat	5.67	5.50
Adjustability – Front to Rear	5.44	5.70
Upholstery	6.78	6.70
Bucket Seat Design	5.78	5.80
Headroom	7.89	9.30
Seatbelts	5.78	6.00
Ease of Entry and Exit	6.33	3.50
Overall Comfort Rating	6.78	5.22
REAR SEAT		
Leg room – Front seat back	5.11	4.30
Ease of Entry and Exit	5.22	3.10
INSTRUMENTATION		
Clarity	7.78	5.40
Placement	7.44	5.70
VEHICLE CONTROLS		
Pedals, Size and Position	7.89	7.30
Power Window Switch	8.50	5.80
Inside Door Lock Switch	5.78	5.40
Automatic Door Lock Switch	8.38	5.70
Outside Mirror Controls	6.67	3.90
Steering Wheel, Size, Tilt Release, and Surface	7.44	4.30
Heat/AC Vent Placement and Adjustability	7.56	6.90
VISIBILITY		
Front (Windshield)	8.00	6.80
Rear (Back Window)	7.00	3.50
Left Rear Quarter	7.11	4.80
Right Rear Quarter	7.00	4.60
Outside Rear View Mirrors	5.67	6.00
COMMUNICATIONS		
Dashboard Accessibility	8.92	6.20
Trunk Accessibility	9.22	6.11
Engine Compartment	9.33	5.67
TOTAL SCORES	**196.90**	**154.40**

FUEL ECONOMY EVALUATION

FUEL ECONOMY

TEST OBJECTIVE

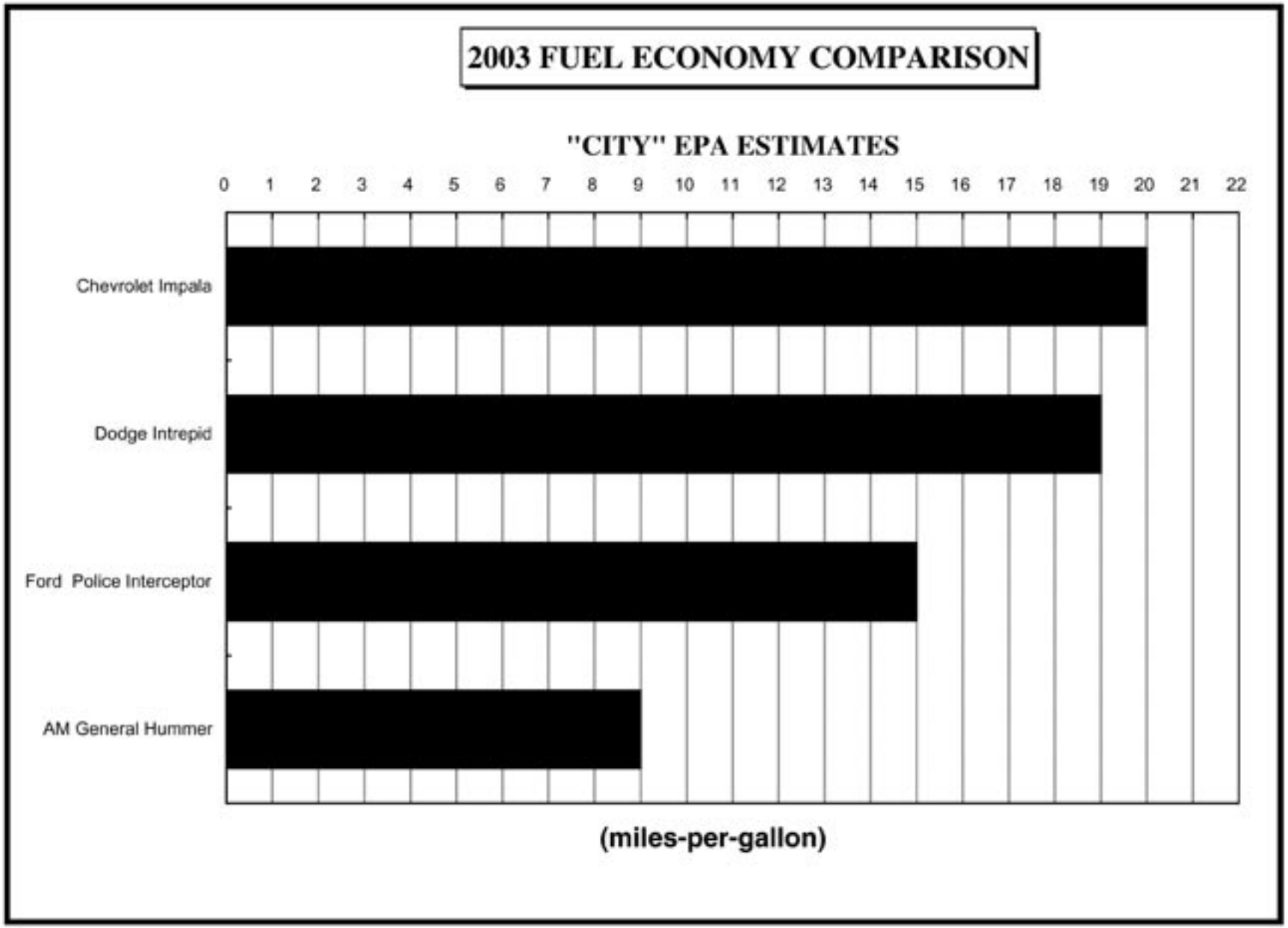
Determine the fuel economy potential of all vehicles being evaluated. The data used for scoring are both valid and reliable in a comparison sense, while not necessarily being an accurate predictor of actual fuel economy in police patrol service.

TEST METHODOLOGY

The vehicles will be scored based on estimates for city fuel economy to the nearest 1/10th mile per gallon (mpg) developed from data supplied by the vehicle manufacturer and certified by the Environmental Protection Agency.

Vehicles Make/Model/Engine		E.P.A. Miles Per Gallon		
		City*	Highway	Combined
Chevrolet Impala	3.8L SPFI	20 (19.5)	29	23
Dodge Intrepid	3.5L SPFI	19 (19.8)	27	22
Ford Police Interceptor	4.6L SPFI	15 (15.0)	22	18
AM General Hummer	6.5L (Turbo Diesel)	9 (9.0)	10	9**

*Scored on city mileage only to the nearest 1/10 mpg.
**Class III vehicle – not tested to normal EPA requirements.


2003 FUEL ECONOMY COMPARISON
"CITY" EPA ESTIMATES
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Chevrolet Impala
Dodge Intrepid
Ford Police Interceptor
AM General Hummer
(miles-per-gallon)

MICHIGAN STATE POLICE
SCORING AND BID ADJUSTMENT METHODOLOGY*

STEP I: RAW SCORES

Raw scores are developed, through testing, for each vehicle in each of six evaluation categories. The raw scores are expressed in terms of seconds, feet per second^2, miles-per-hour, points, and miles-per-gallon.

VEHICLE DYNAM. (seconds)	ACCEL. (seconds)	BRAKING RATE (ft/sec^2)	TOP SPEED (mph)	ERGONOMICS & COMMUN. (points)	FUEL ECONOMY (mpg)
92.210	45.790	26.380	115.000	173.900	14.300

STEP II: DEVIATION FACTOR

In each evaluation category, the best scoring vehicle's score is used as the benchmark against which each of the other vehicles' scores are compared. (In the Vehicle Dynamics and Acceleration categories the lowest score is best, while in the remainder of the categories the highest score is best.) The best scoring vehicle in a given category received a deviation factor of "0." The "deviation factor" is then calculated by determining the absolute difference between each vehicle's raw score and the best score in that category. The absolute difference is then divided by the best score, with the result being the "deviation factor."

CAR MAKE MODEL	TOP SPEED
CAR "A"	115.000 **.042**
CAR "B"	118.800 **.010**
CAR "C"	117.900 **.018**
CAR "D"	120.000 **0**

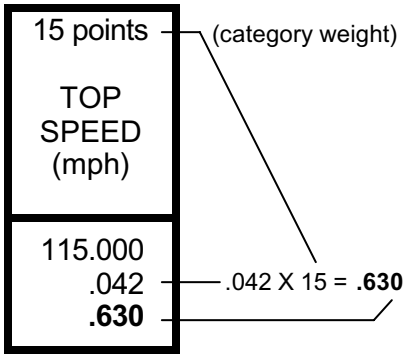
EXAMPLE:

Best Score (Car "D")		Other Vehicle Score (Car "A")		Absolute Difference		Best Score		Deviation Factor (Car "A")
120.000	-	115.000	=	5	/	120.000	=	**.042**

STEP III: WEIGHTED CATEGORY SCORE

Each vehicle's weighted category score is determined by multiplying the deviation factor (as determined in Step II) by the category weight.

RAW SCORE
DEVIATION FACTOR
WEIGHTED CATEGORY SCORE



*All mathematical computations are to be rounded to the third decimal place.

STEP IV: TOTAL WEIGHTED SCORE

Adding together the six (6) weighted category scores for that vehicle derives the total weighted score for each vehicle.

EXAMPLE:

CAR	30 pts. VEH. DYN. (seconds)	20 pts. ACCEL. (seconds)	20 pts. BRAKE DECEL. (ft/sec^2)	15 pts. TOP SPEED (mph)	10 pts. ERGO/ COMM. (points)	5 pts. FULE ECON. (mpg)	TOTAL WEIGHTED SCORE
Car "A"	92.210 .018 .540	45.790 .163 3.260	26.380 0 0	115.000 .042 .630	173.900 .184 1.840	14.300 0 0	**6.270**

STEP V: BID ADJUSTMENT FIGURE

The bid adjustment figure that we have chosen to use is one percent (1%) of the lowest bid price received. As an example, in this and the following two steps, the lowest bid price received was $15,238.00, which results in a bid adjustment figure of **$152.38**.

STEP VI: ACTUAL DOLLAR ADJUSTMENT

The actual dollar adjustment for a vehicle is determined by multiplying that vehicle's total weighted score by the bid adjustment figure as shown at right.

TOTAL WTD. SCORE	BID ADJ. FIGURE	ACTUAL DOLLAR ADJ.
	X	**=**
6.270	$152.38	**$955.42**

STEP VII: ADJUSTED BID PRICE

The actual dollar adjustment amount arrived at for each vehicle is added to that vehicle's bid price. Provided other necessary approvals are received, the vehicle with the lowest adjusted bid price will be the vehicle purchased. (The amount paid for the purchased vehicles will be the actual bid price.)

ACTUAL DOLLAR ADJ.	ACTUAL BID PRICE	ADJ. BID PRICE
	+	**=**
$955.42	$15,473.00	**$16,428.42**

APPENDIX I
PERFORMANCE COMPARISONS OF 2002 AND 2003 TEST VEHICLES

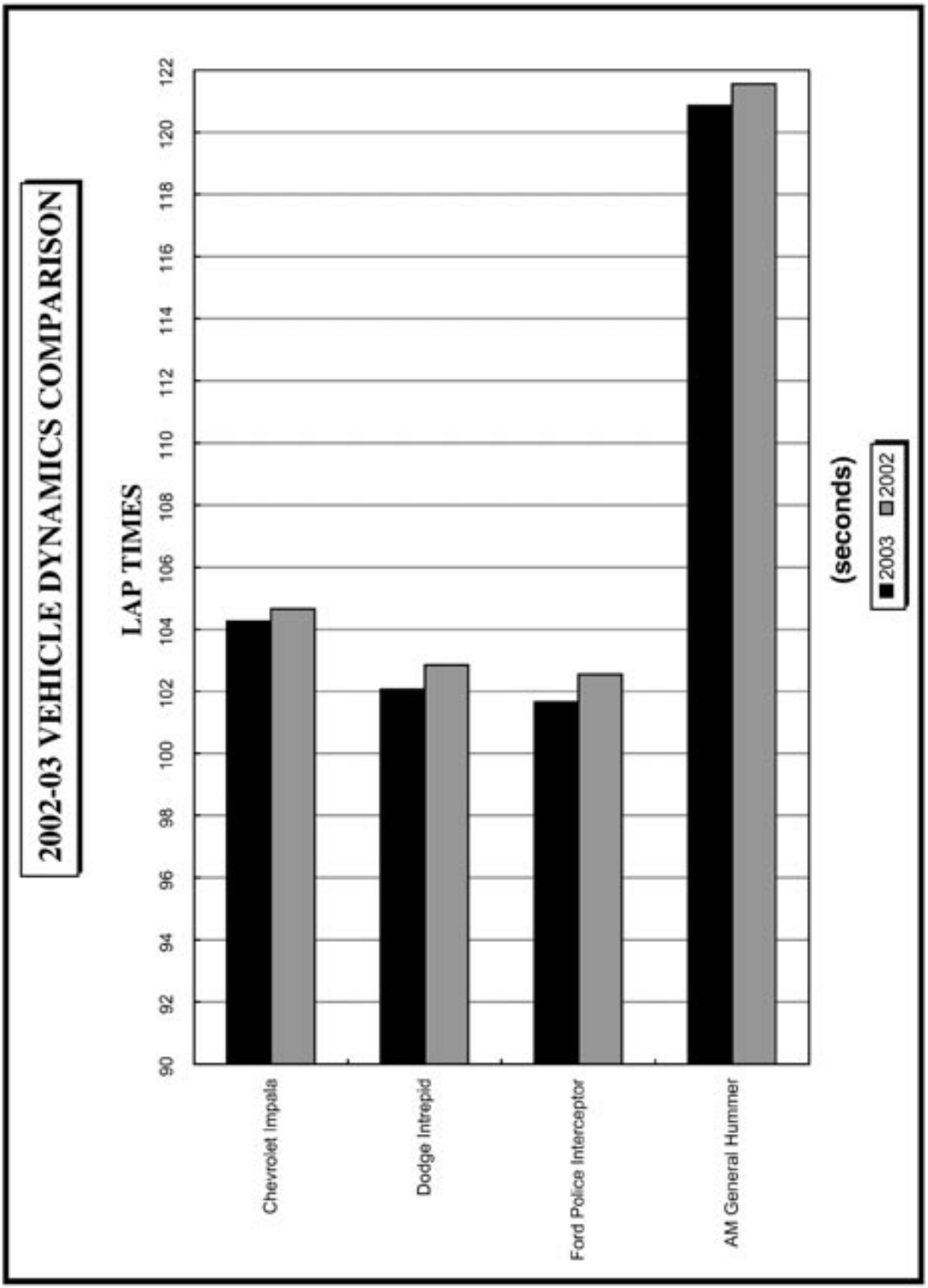
The following charts illustrate the scores achieved by each make and model of vehicle tested for model years 2002 and 2003. The charts presented are for the following performance categories:

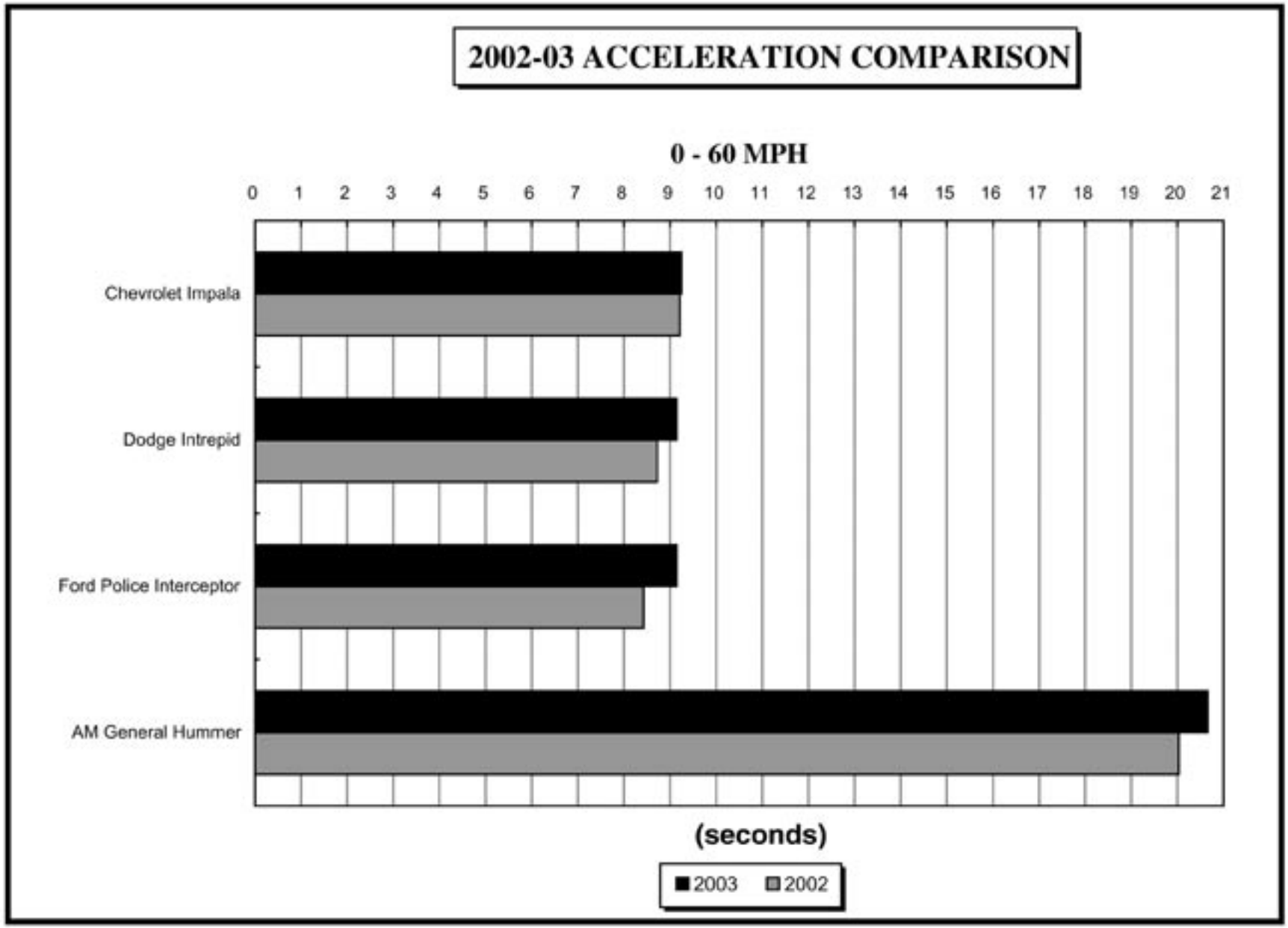
Vehicle Dynamics
Acceleration 0 – 60 mph
Acceleration 0 – 80 mph
Acceleration 0 – 100 mph
Top Speed
Braking (Calculated 60 – 0 mph Stopping Distance)

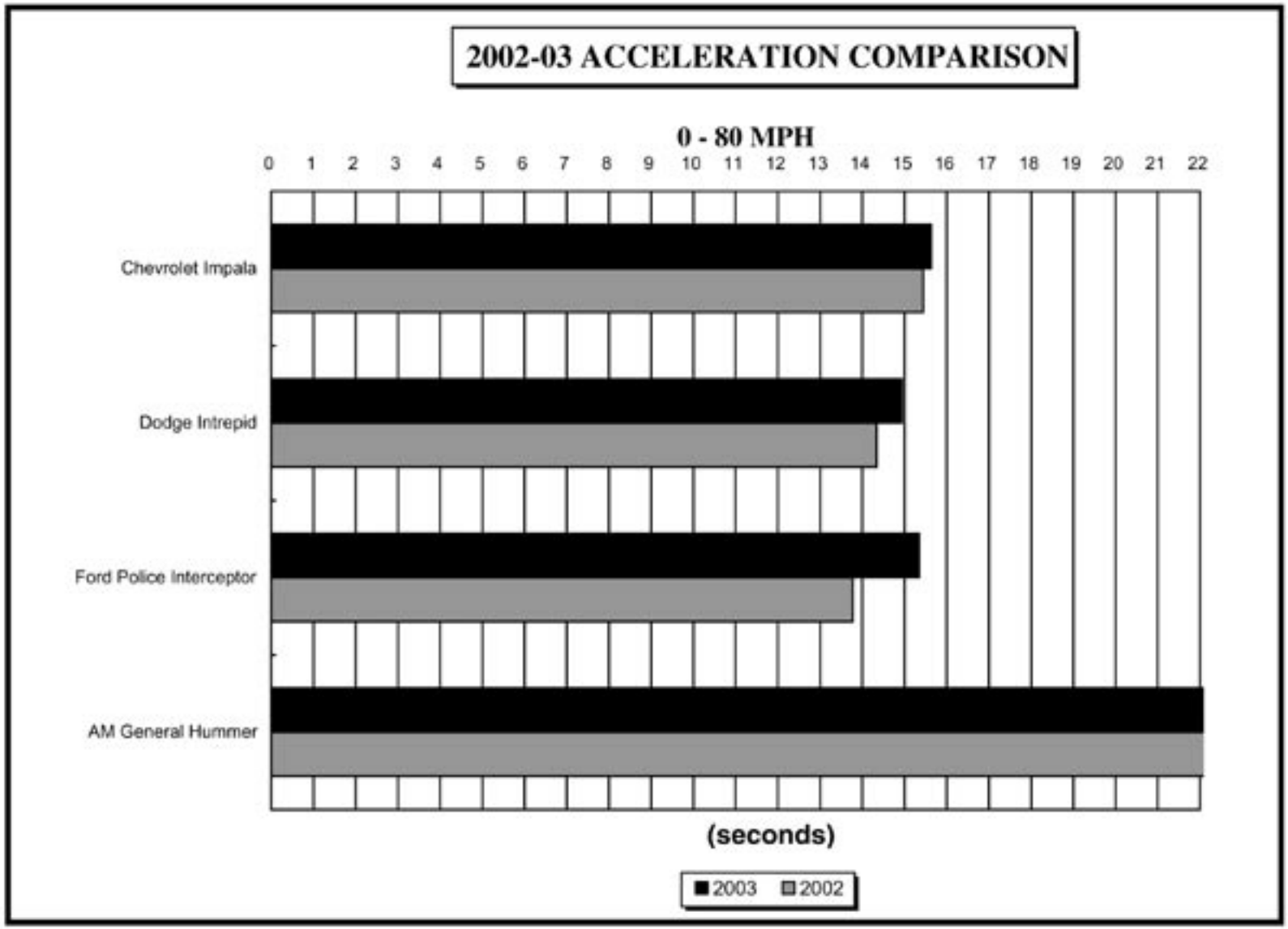
The reader should bear in mind the following information regarding variables when reviewing the 2002 – 2003 performance comparison charts in Appendix I. While as many variables as possible are eliminated from a given year's testing, those that occur over the span of a full year are sometimes impossible to eliminate.

The acceleration, top speed, and brake testing of both the 2002 and 2003 model year vehicles were conducted in the latter half of September. Temperatures on the test day in September of 2001 ranged between 49° F at the start of testing to a high of approximately 66° F during the afternoon. Temperatures during the testing this year varied, ranging between 60.9° F when testing started, to an afternoon high of 79.5° F. Such things as temperature, humidity, and barometric pressure affect the performance of internal combustion engines and brake components, and may cause minor differences from one year's evaluation to the next.

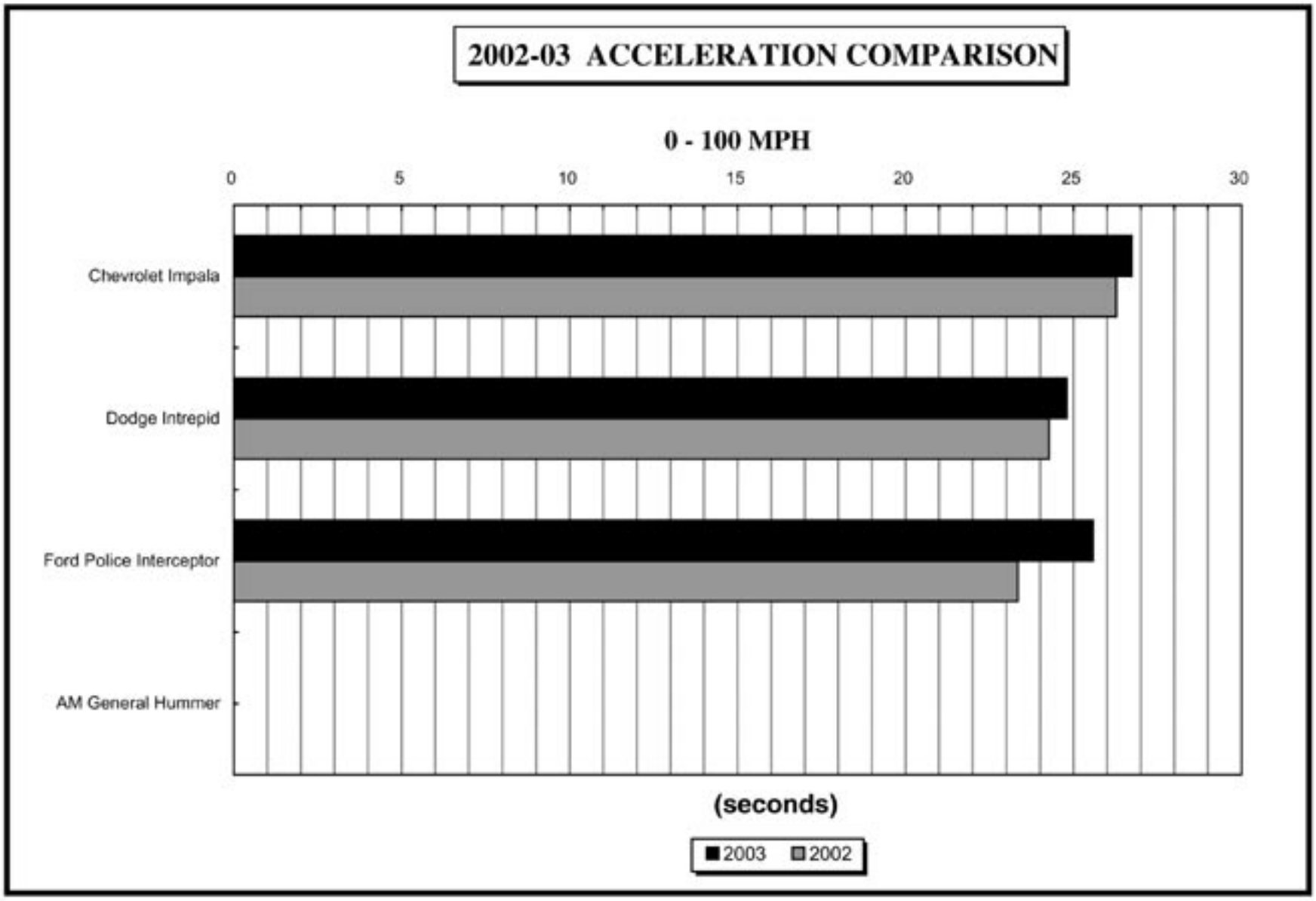
Another factor to be considered is the individual differences between two cars of the same make and model. The test cars that we evaluate are representative of their given make and model. Other cars of the same make and model will not, however, be exactly the same, particularly when it comes to performance. (It is well known that two consecutive cars off the same assembly line will perform slightly differently from each other.) Minor differences in performance from year to year within the same make and model are not only possible, but are to be expected.


2002-03 VEHICLE DYNAMICS COMPARISON
LAP TIMES
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
Chevrolet Impala
Dodge Intrepid
Ford Police Interceptor
AM General Hummer
(seconds)
2003
2002

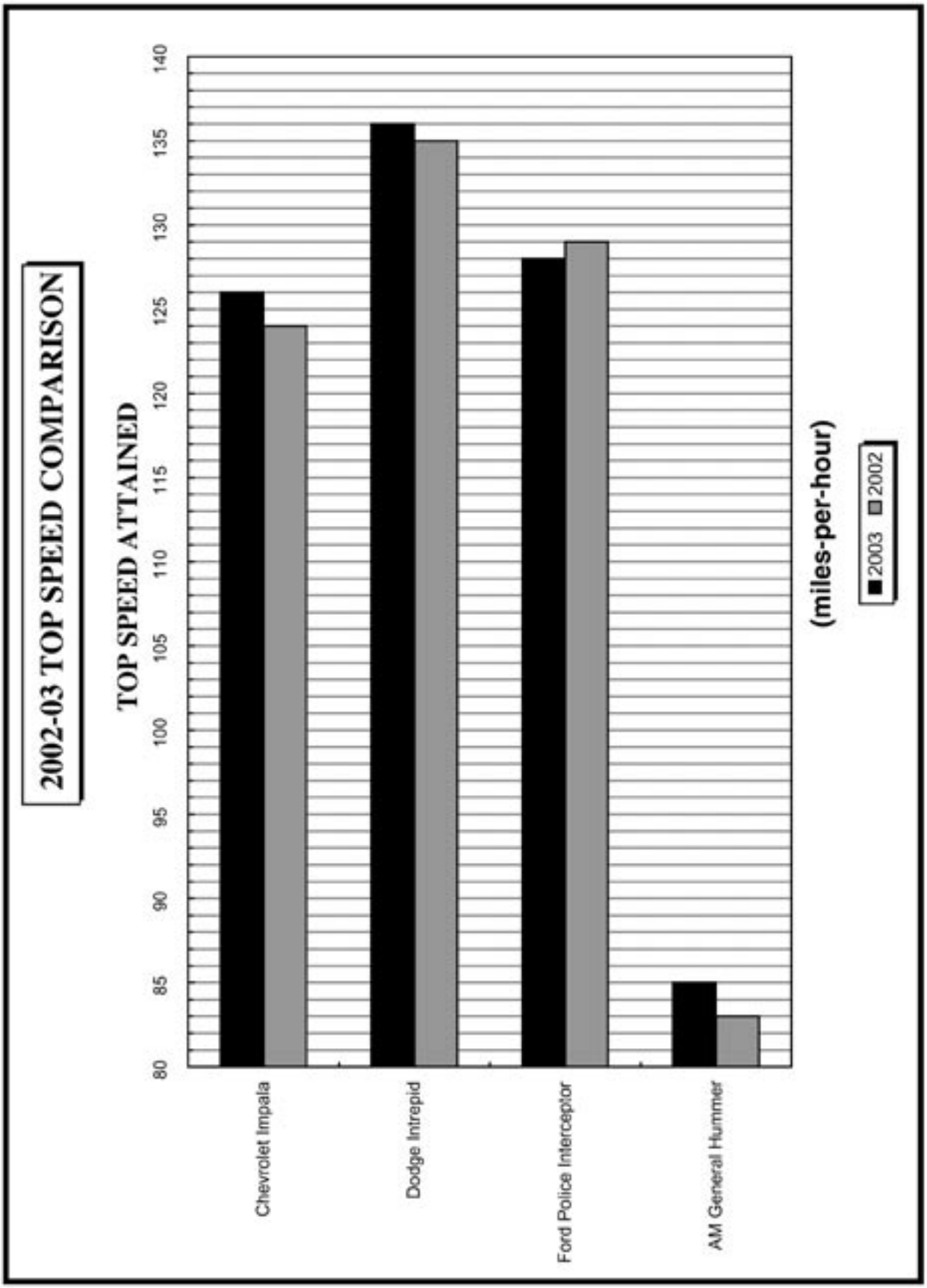

2002-03 ACCELERATION COMPARISON
0 - 60 MPH
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Chevrolet Impala
Dodge Intrepid
Ford Police Interceptor
AM General Hummer
(seconds)
2003
2002

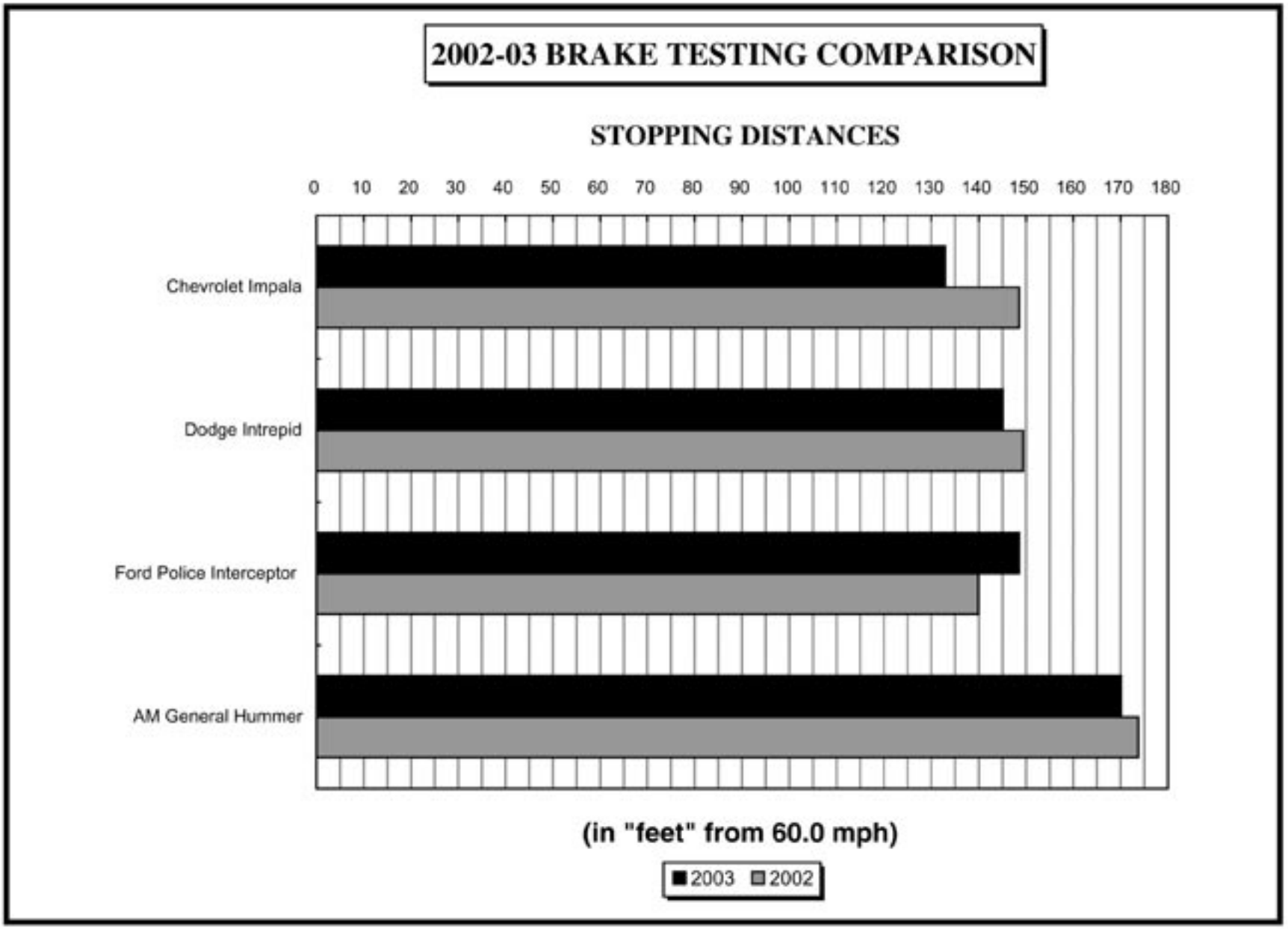


Note: The Hummer 2003 time was 54.77 seconds.
The Hummer 2002 time was 56.25 seconds.



Note: The Hummer did not reach 100 mph.


2002-03 TOP SPEED COMPARISON
TOP SPEED ATTAINED
80
85
90
95
100
105
110
115
120
125
130
135
140
Chevrolet Impala
Dodge Intrepid
Ford Police Interceptor
AM General Hummer
(miles-per-hour)
2003
2002


2002-03 BRAKE TESTING COMPARISON
STOPPING DISTANCES
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180
Chevrolet Impala
Dodge Intrepid
Ford Police Interceptor
AM General Hummer
(in "feet" from 60.0 mph)
2003 2002

Display vehicle at DaimlerChrysler Proving Grounds

Vintage police vehicle display at Grattan Raceway

Early morning parctice laps at Grattan Raceway

APPENDIX II
SPECIAL SERVICE VEHICLES

The issue of what makes a police vehicle a “police package” is a matter that will be with us for some time. Many law enforcement agencies still require a police vehicle to be capable of participating in a pursuit and look to the manufacturers to put their engineering talents towards that goal. At the same time some law enforcement agencies need a vehicle that has cargo capacity and other attributes, but does not require pursuit capabilities. For this, the manufacturers offer “special service” vehicles.

The Michigan Department of State Police presents this information on “special service” vehicles with the caveat that the reader is aware that these vehicles are not engineered for high speed or pursuit driving. The vehicles were tested in all the categories except vehicle dynamics, which is high-speed handling and represents pursuit applications.

The special service vehicles were tested in the following: Acceleration, Top Speed, Braking, Fuel Economy, and Ergonomics & Communications.

SPECIAL SERVICE VEHICLES ARE NOT ENGINEERED FOR HIGH SPEED AND PURSUIT APPLICATIONS.

FORD EXPLORER
4.0L SFI (2-WHEEL DRIVE)

(Not designed for high speed or pursuit driving)

(NOT DESIGNED FOR HIGH SPEED OR PURSUIT DRIVING)

TEST VEHICLE DESCRIPTION

MAKE Ford	**MODEL** Explorer 2WD		**SALES CODE NO.** U63		
ENGINE DISPLACEMENT	**CUBIC INCHES** 244		**LITERS** 4.0L		
FUEL SYSTEM	Sequential Fuel Injection		**EXHAUST** Single		
HORSEPOWER (SAENET)	210 @ 5100 RPM		**ALTERNATOR** 130 amp.		
TORQUE	254 ft. lbs. @ 3700 RPM		**BATTERY** 650 cca.		
COMPRESSION RATIO	9.7:1				
TRANSMISSION	**MODEL** 5R55W5	**TYPE** 5-Speed Automatic Overdrive			
	LOCKUP TORQUE CONVERTER? Yes				
	OVERDRIVE? Yes				
AXLE RATIO	3.55				
STEERING	Power Rack & Pinion				
TURNING CIRCLE (CURB TO CURB)	36.75 Feet				
TIRE SIZE, LOAD & SPEED RATING	P245/65 R17 Michelin pilot LTX				
SUSPENSION TYPE (FRONT)	Coil spring (SLA) Independent front and rear				
SUSPENSION TYPE (REAR)	Coil spring (SLA) Independent front and rear				
GROUND CLEARANCE, MINIMUM	8.5 in.	**LOCATION** Transmission Cross Member			
BRAKE SYSTEM	Power w/4-wheel disc, ABS				
BRAKES, FRONT	**TYPE** Disc		**SWEPT AREA** 234.60 sq. in.		
BRAKES, REAR	**TYPE** Disc		**SWEPT AREA** 170.80 sq. in.		
FUEL CAPACITY	**GALLONS** 22.5		**LITERS** 85.1		
GENERAL MEASUREMENTS	**WHEELBASE** 114.0 in.		**LENGTH** 189.5 in.		
	TEST WEIGHT 4602		**HEIGHT** 71.4 in.		
HEADROOM	**FRONT** 39.9 in.		**REAR** 38.9 in.		
LEGROOM	**FRONT** 42.4 in.		**REAR** 37.2 in.		
SHOULDER ROOM	**FRONT** 59.1 in.		**REAR** 58.9 in.		
HIPROOM	**FRONT** 55.0 in.		**REAR** 54.2 in.		
INTERIOR VOLUME	**FRONT** 81.8 cu. ft.		**REAR** 44.5 cu. ft.		
***MAX. CARGO IS W/REAR SEATS FOLDED DOWN**	**COMB** 126.3 cu. ft.		***MAX. CARGO** 88.0 cu. ft.		
EPA MILEAGE EST. (MPG)	**CITY** 14	**HIGHWAY** 19	**COMBINED** 16		

FORD EXPEDITION
4.6L SMPFI (2-WHEEL DRIVE)

(Not designed for high speed or pursuit driving)

(NOT DESIGNED FOR HIGH SPEED OR PURSUIT DRIVING)

TEST VEHICLE DESCRIPTION

MAKE Ford	**MODEL** Expedition 2WD		**SALES CODE NO.** U15	
ENGINE DISPLACEMENT	**CUBIC INCHES** 281		**LITERS**	4.6
FUEL SYSTEM	Sequential Multiport Fuel Injection		**EXHAUST**	Single
HORSEPOWER (SAENET)	260 @ 4500 RPM		**ALTERNATOR**	130 amp.
TORQUE	350 ft. lbs. @ 2500 RPM		**BATTERY**	650 cca.
COMPRESSION RATIO	9.0:1			
TRANSMISSION	**MODEL** 4R70W	**TYPE** 4-Speed Automatic		
	LOCKUP TORQUE CONVERTER? Yes			
	OVERDRIVE? Yes			
AXLE RATIO	3.73			
STEERING	Variable assist power rack & pinion			
TURNING CIRCLE (CURB TO CURB)	38.7 Feet			
TIRE SIZE, LOAD & SPEED RATING	P265/70 R17 Contenental Contitrac SUV			
SUSPENSION TYPE (FRONT)	Double wishbone (SLA) coil-over shock, gas filled			
SUSPENSION TYPE (REAR)	IRS, double wishbone (SLA) coil-over shock, gas filled			
GROUND CLEARANCE, MINIMUM	8.9 in.	**LOCATION** Front airdam		
BRAKE SYSTEM	4-wheel power disc brakes with 4-sensor			
BRAKES, FRONT	**TYPE**	Disc	**SWEPT AREA**	250 sq. in.
BRAKES, REAR	**TYPE**	Disc	**SWEPT AREA**	232 sq. in.
FUEL CAPACITY	**GALLONS**	28	**LITERS**	106.0
GENERAL MEASUREMENTS	**WHEELBASE**	119 in.	**LENGTH**	205.8 in.
	TEST WEIGHT	5359 lbs.	**HEIGHT**	77.4 in.
HEADROOM	**FRONT**	39.7 in.	**REAR**	39.8 in.
LEGROOM	**FRONT**	41.2 in.	**REAR**	38.7 in.
SHOULDER ROOM	**FRONT**	63.4 in.	**REAR**	64.3 in.
HIPROOM	**FRONT**	63.0 in.	**REAR**	62.4 in.
INTERIOR VOLUME	**FRONT**	60.0	**REAR**	49.6 cu. ft.
***MAX. CARGO IS W/REAR SEATS FOLDED DOWN**	**COMB**	109.6	***MAX. CARGO**	110.5 cu. ft.
EPA MILEAGE EST. (MPG)	**CITY** 14	**HIGHWAY** 19	**COMBINED** 16	

FORD EXPEDITION
5.4L SFI (4-WHEEL DRIVE)

(Not designed for high speed or pursuit driving)

(NOT DESIGNED FOR HIGH SPEED OR PURSUIT DRIVING)

TEST VEHICLE DESCRIPTION

MAKE Ford	**MODEL** Expedition 4WD		**SALES CODE NO.** U18	
ENGINE DISPLACEMENT	**CUBIC INCHES** 330		**LITERS**	5.4
FUEL SYSTEM	Sequential Multiport Fuel Injection		**EXHAUST**	Single
HORSEPOWER (SAENET)	260 @ 4500 RPM		**ALTERNATOR**	130 amp.
TORQUE	350 ft. lbs. @ 2500 RPM		**BATTERY**	650 cca.
COMPRESSION RATIO	9.0:1			
TRANSMISSION	**MODEL** 4R70W	**TYPE** 4-Speed Auto O/D		
	LOCKUP TORQUE CONVERTER? Yes			
	OVERDRIVE? Yes			
AXLE RATIO	3:73			
STEERING	Variable assist power rack & pinion			
TURNING CIRCLE (CURB TO CURB)	38.7 Feet			
TIRE SIZE, LOAD & SPEED RATING	P265/70 R17 Continental Contitrac TR			
SUSPENSION TYPE (FRONT)	Double wishbone (SLA) coil-over-shock, gas filled			
SUSPENSION TYPE (REAR)	IRS, double wishbone (SLA) coil-over-shock, gas filled			
GROUND CLEARANCE, MINIMUM	8.9 in.	**LOCATION** Rear differential		
BRAKE SYSTEM	Power Disc w/4-wheel anti-lock			
BRAKES, FRONT	**TYPE**	Disc	**SWEPT AREA**	250.0 sq. in.
BRAKES, REAR	**TYPE**	Disc	**SWEPT AREA**	232.0 sq. in.
FUEL CAPACITY	**GALLONS**	28.0	**LITERS**	106.0
GENERAL MEASUREMENTS	**WHEELBASE**	119.0 in.	**LENGTH**	205.8 in.
	TEST WEIGHT	5846 lbs.	**HEIGHT**	77.4 in.
HEADROOM	**FRONT**	39.7 in.	**REAR**	39.8 in.
LEGROOM	**FRONT**	41.2 in.	**REAR**	38.7 in.
SHOULDER ROOM	**FRONT**	63.4 in.	**REAR**	64.3 in.
HIPROOM	**FRONT**	63.0 in.	**REAR**	62.4 in.
INTERIOR VOLUME	**FRONT**	60.0	**REAR**	49.6 cu. ft.
***MAX. CARGO IS W/REAR SEATS FOLDED DOWN**	**COMB**	109.6	***MAX. CARGO**	110.5 cu. ft.
EPA MILEAGE EST. (MPG)	**CITY** 13	**HIGHWAY** 17	**COMBINED** 15	

CHEVROLET TAHOE
5.3L SPFI (2-WHEEL DRIVE)

(Not designed for high speed or pursuit driving)

(NOT DESIGNED FOR HIGH SPEED OR PURSUIT DRIVING)

TEST VEHICLE DESCRIPTION

MAKE Chevrolet	**MODEL** Tahoe 2WD		**SALES CODE NO.** CC15706	
ENGINE DISPLACEMENT	**CUBIC INCHES** 327		**LITERS**	5.3L*
FUEL SYSTEM	Sequential Port Fuel Injection		**EXHAUST**	Single
HORSEPOWER (SAENET)	285 @ 5200 RPM		**ALTERNATOR**	130 amp.
TORQUE	325 ft. lbs. @ 4000 RPM		**BATTERY**	600 cca.
COMPRESSION RATIO	9.5:1			
TRANSMISSION	**MODEL** 4L60E	**TYPE** 4-Speed Automatic Overdrive		
	LOCKUP TORQUE CONVERTER? Yes			
	OVERDRIVE? Yes			
AXLE RATIO	3.42			
STEERING	Power-recirculating ball			
TURNING CIRCLE (CURB TO CURB)	38.3 Feet			
TIRE SIZE, LOAD & SPEED RATING	P 245/75 R16 Goodyear Wrangler ST			
SUSPENSION TYPE (FRONT)	Independent, single lower arm with torsion bar			
SUSPENSION TYPE (REAR)	Multi-link with coil springs			
GROUND CLEARANCE, MINIMUM	9.7 in.	**LOCATION** Front cross member		
BRAKE SYSTEM	Vacuum power anti-lock			
BRAKES, FRONT	**TYPE**	Disc	**SWEPT AREA**	213 sq. in.
BRAKES, REAR	**TYPE**	Disc	**SWEPT AREA**	133 sq. in.
FUEL CAPACITY	**GALLONS**	26.0	**LITERS**	98.4
GENERAL MEASUREMENTS	**WHEELBASE**	116 in.	**LENGTH**	198.9 in.
	TEST WEIGHT	5142 lbs.	**HEIGHT**	76.3 in.
HEADROOM	**FRONT**	40.7 in.	**REAR**	39.4 in.
LEGROOM	**FRONT**	41.3 in.	**REAR**	38.6 in.
SHOULDER ROOM	**FRONT**	65.2 in.	**REAR**	65.1 in.
HIPROOM	**FRONT**	61.4 in.	**REAR**	61.3 in.
INTERIOR VOLUME	**FRONT**	94.3 cu. ft.	**REAR**	57.3 cu. ft.
***MAX. CARGO IS W/REAR SEATS FOLDED DOWN**	**COMB**	151.6 cu. ft.	***MAX. CARGO**	108.2 cu. ft.
EPA MILEAGE EST. (MPG)	**CITY** 15	**HIGHWAY** 20	**COMBINED** 16.5	

*Vehicle tested with "optional engine" – standard engine is 4.8L

CHEVROLET TAHOE
5.3L SPFI (4-WHEEL DRIVE)

(Not designed for high speed or pursuit driving)

(NOT DESIGNED FOR HIGH SPEED OR PURSUIT DRIVING)

TEST VEHICLE DESCRIPTION

MAKE Chevrolet	**MODEL** Tahoe 4WD		**SALES CODE NO.** CK15706		
ENGINE DISPLACEMENT	**CUBIC INCHES** 327		**LITERS** 5.3L*		
FUEL SYSTEM	Sequential Port Fuel Injection		**EXHAUST** Single		
HORSEPOWER (SAENET)	285 @ 5200 RPM		**ALTERNATOR** 130 amp.		
TORQUE	325 ft. lbs. @ 4000 RPM		**BATTERY** 600 cca.		
COMPRESSION RATIO	9.5:1				
TRANSMISSION	**MODEL** 4L60E	**TYPE** 4-Speed electronic automatic			
	LOCKUP TORQUE CONVERTER? Yes				
	OVERDRIVE? Yes				
AXLE RATIO	3.73:				
STEERING	Speed sensitive, power, recirculating ball				
TURNING CIRCLE (CURB TO CURB)	38.3 Feet				
TIRE SIZE, LOAD & SPEED RATING	P245/75 R16 Goodyear Wrangler ST				
SUSPENSION TYPE (FRONT)	Independent SLA w/torsion bar				
SUSPENSION TYPE (REAR)	Multi-link with coil springs				
GROUND CLEARANCE, MINIMUM	10.7 in.	**LOCATION** Front differential			
BRAKE SYSTEM	Vacuum power anti-lock				
BRAKES, FRONT	**TYPE** Disc		**SWEPT AREA** 213 sq. in.		
BRAKES, REAR	**TYPE** Disc		**SWEPT AREA** 133 sq. in.		
FUEL CAPACITY	**GALLONS** 26.0		**LITERS** 98.4		
GENERAL MEASUREMENTS	**WHEELBASE** 116.0		**LENGTH** 198.9		
	TEST WEIGHT 5290 lbs.		**HEIGHT** 76.3 in.		
HEADROOM	**FRONT** 40.7 in.		**REAR** 39.4 in.		
LEGROOM	**FRONT** 41.3 in.		**REAR** 38.6 in.		
SHOULDER ROOM	**FRONT** 65.2 in.		**REAR** 65.1 in.		
HIPROOM	**FRONT** 61.4 in.		**REAR** 61.3 in.		
INTERIOR VOLUME	**FRONT** 94.3 cu. ft.		**REAR** 57.3 cu. ft.		
	COMB 151.6 cu. ft.		**TRUNK** 108.2 cu. ft.		
EPA MILEAGE EST. (MPG)	**CITY** 14	**HIGHWAY** 18	**COMBINED** 15		

TEST VEHICLE DESCRIPTION SUMMARY

	Ford 2WD Explorer	Ford 2WD Expedition	Ford 4WD Expedition
ENGINE DISPLACEMENT – CU. IN.	244	281	330
ENGINE DISPLACEMENT – LITERS	4.0	4.6	5.4
ENGINE FUEL SYSTEM	SFI	SMPFI	SMPFI
HORSEPOWER (SAE NET)	210	260	260
TORQUE (FT. LBS.)	254	350	350
COMPRESSION RATIO	9.7:1	9.0:1	9.0:1
AXLE RATIO	3.55	3.73	3.73
TURNING CIRCLE – FT. CURB TO CURB	36.75	38.7	38.7
TRANSMISSION	5 Speed auto	4 Speed auto	4 Speed auto
TRANSMISSION MODEL NUMBER	5R55W5	4R70W	4R70W
LOCKUP TORQUE CONVERTER	Yes	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes	Yes
TIRE SIZE	P245/65R	P265/70R	P265/70R
WHEEL RIM SIZE – INCHES	17	17	17
GROUND CLEARANCE – INCHES	8.5	8.9	8.9
BRAKE SYSTEM	Power, ABS	Power, ABS	Power, ABS
BRAKES – FRONT TYPE	Disc	Disc	Disc
BRAKES – REAR TYPE	Disc	Disc	Disc
FUEL CAPACITY – GALLONS	22.5	28	28.0
FUEL CAPACITY – LITERS	85.1	106	106.0
OVERALL LENGTH – INCHES	189.5	205.8	205.8
OVERALL HEIGHT – INCHES	71.4	77.4	77.4
TEST WEIGHT – LBS.	4602	5359	5846
WHEELBASE – INCHES	114.0	119	119.0
HEADROOM FRONT – INCHES	39.9	39.7	39.7
HEADROOM REAR – INCHES	38.9	39.8	39.8
LEGROOM FRONT – INCHES	42.4	41.2	41.2
LEGROOM REAR – INCHES	37.2	38.7	38.7
SHOULDER ROOM FRONT – INCHES	59.1	63.4	63.4
SHOULDER ROOM REAR – INCHES	58.9	64.3	64.3
HIPROOM FRONT – INCHES	55.0	63.0	63.0
HIPROOM REAR – INCHES	54.2	62.4	62.4
INTERIOR VOLUME FRONT – CU. FT.	81.8	60.0	60.0
INTERIOR VOLUME REAR – CU. FT.	44.5	49.6	49.6
INTERIOR VOLUME COMB. – CU. FT.	126.3	109.6	109.6
REAR MAXIMUM CARGO – CU. FT.	88.0	110.5	110.5
EPA MILEAGE – CITY – MPG	14	14	13
EPA MILEAGE – HIGHWAY – MPG	19	19	17
EPA MILEAGE – COMBINED – MPG	16	16	15

TEST VEHICLE DESCRIPTION SUMMARY

	Chevrolet 2WD Tahoe	Chevrolet 4WD Tahoe
ENGINE DISPLACEMENT – CU. IN.	327	327
ENGINE DISPLACEMENT – LITERS	5.3*	5.3*
ENGINE FUEL SYSTEM	SPFI	SPFI
HORSEPOWER (SAE NET)	285	285
TORQUE (FT. LBS.)	325	325
COMPRESSION RATIO	9.5:1	9.5:1
AXLE RATIO	3.42	3.73
TURNING CIRCLE – FT. CURB TO CURB	38.3	38.3
TRANSMISSION	4 Speed auto	4 Speed auto
TRANSMISSION MODEL NUMBER	4L60E	4L60E
LOCKUP TORQUE CONVERTER	Yes	Yes
TRANSMISSION OVERDRIVE	Yes	Yes
TIRE SIZE	P245/75R	P245/75R
WHEEL RIM SIZE – INCHES	16	16
GROUND CLEARANCE – INCHES	9.7	10.7
BRAKE SYSTEM	Power, ABS	Power, ABS
BRAKES – FRONT TYPE	Disc	Disc
BRAKES – REAR TYPE	Disc	Disc
FUEL CAPACITY – GALLONS	26.0	26.0
FUEL CAPACITY – LITERS	98.4	98.4
OVERALL LENGTH – INCHES	198.9	198.9
OVERALL HEIGHT – INCHES	76.3	76.3
TEST WEIGHT – LBS.	5142	5290
WHEELBASE – INCHES	116.0	116.0
HEADROOM FRONT – INCHES	40.7	40.7
HEADROOM REAR – INCHES	39.4	39.4
LEGROOM FRONT – INCHES	41.3	41.3
LEGROOM REAR – INCHES	38.6	38.6
SHOULDER ROOM FRONT – INCHES	65.2	65.2
SHOULDER ROOM REAR – INCHES	65.1	65.1
HIPROOM FRONT – INCHES	61.4	61.4
HIPROOM REAR – INCHES	61.3	61.3
INTERIOR VOLUME FRONT – CU. FT.	94.3	94.3
INTERIOR VOLUME REAR – CU. FT.	57.3	57.3
INTERIOR VOLUME COMB. – CU. FT.	151.6	151.6
REAR MAXIMUM CARGO – CU. FT.	108.2	108.2
EPA MILEAGE – CITY – MPG	15	14
EPA MILEAGE – HIGHWAY – MPG	20	18
EPA MILEAGE – COMBINED – MPG	16.5	15

*Vehicle tested with “optional” engine – standard engine is 4.8L, same as 2002 model for performance rating.

SUMMARY OF ACCELERATION, TOP SPEED, AND BRAKE TESTING

ACCELERATION*		**Ford 2WD Explorer 4.0L SFI**	**Ford 2WD Expedition 4.6L SMPFI**	**Ford 4WD Expedition 5.4L SMPFI**
0 – 20 mph	(sec.)	2.33	2.81	2.24
0 – 30 mph	(sec.)	3.84	4.53	3.81
0 – 40 mph	(sec.)	5.79	6.33	5.59
0 – 50 mph	(sec.)	8.37	9.15	8.28
0 – 60 mph	(sec.)	11.75	12.30	11.27
0 – 70 mph	(sec.)	15.54	15.88	14.72
0 – 80 mph	(sec.)	20.57	21.82	19.75
0 – 90 mph	(sec.)	28.39	29.56	26.85
0 – 100 mph	(sec.)	37.87	40.91	35.83
TOP SPEED	(mph)	101**	100**	100**
DISTANCE TO REACH				
110 mph	(miles)	N/A	N/A	N/A
120 mph	(miles)	N/A	N/A	N/A
QUARTER MILE				
Time	(sec.)	18.50	18.99	18.27
Speed	(miles)	76.28	75.95	77.63
		ABS	**ABS**	**ABS**
BRAKING – PHASE I				
Average Deceleration Rate	(ft/s^2)	26.64	26.38	24.95
BRAKING – PHASE II				
Average Deceleration Rate	(ft/s^2)	26.77	24.34	24.56
BRAKING – FINAL SCORE				
Deceleration Rate	**(ft/s^2)**	**26.70**	**25.36**	**24.76**
Projected Stopping Distance from 60 mph	(feet)	145.0	152.7	156.4

*Four run average.
**Vehicle equipped with an electronic speed limiter.

SUMMARY OF ACCELERATION, TOP SPEED, AND BRAKE TESTING

ACCELERATION*		**Chevrolet Tahoe 2WD 5.3L SPFI**	**Chevrolet Tahoe 4WD 5.3L SPFI**
0 – 20 mph	(sec.)	2.12	2.17
0 – 30 mph	(sec.)	3.52	3.50
0 – 40 mph	(sec.)	4.92	4.90
0 – 50 mph	(sec.)	6.72	6.90
0 – 60 mph	(sec.)	9.34	9.31
0 – 70 mph	(sec.)	12.04	11.97
0 – 80 mph	(sec.)	15.17	16.14
0 – 90 mph	(sec.)	21.15	21.81
0 – 100 mph	(sec.)	N/A	N/A
TOP SPEED	(mph)	98**	98**
DISTANCE TO REACH			
110 mph	(miles)	N/A	N/A
120 mph	(miles)	N/A	N/A
QUARTER MILE			
Time	(sec.)	17.07	17.14
Speed	(miles)	83.60	81.98
		ABS	**ABS**
BRAKING – PHASE I			
Average Deceleration Rate	(ft/s^2)	25.83	25.67
BRAKING – PHASE II			
Average Deceleration Rate	(ft/s^2)	25.55	24.95
BRAKING – FINAL SCORE			
Deceleration Rate	**(ft/s^2)**	**25.69**	**25.31**
Projected Stopping Distance from 60 mph	(feet)	150.7	153.0

*Four run average.
**Vehicle equipped with an electronic speed limiter.

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 4:29 p.m. **TEMPERATURE:** 78.4°F

MAKE and MODEL: Ford Explorer 4.0L (2WD) **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.8 mph	140.6 feet	27.36 ft/s^2
Stop #2	60.0 mph	146.9 feet	26.36 ft/s^2
Stop #3	59.9 mph	144.6 feet	26.69 ft/s^2
Stop #4	60.1 mph	148.2 feet	26.22 ft/s^2
Stop #5	59.0 mph	143.3 feet	26.13 ft/s^2
Stop #6	59.8 mph	142.1 feet	27.07 ft/s^2

AVERAGE DECELERATION RATE (Phase I): 26.64 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.5 mph	142.6 feet	26.70 ft/s^2
Stop #2	59.8 mph	139.6 feet	27.55 ft/s^2
Stop #3	59.8 mph	141.8 feet	27.13 ft/s^2
Stop #4	59.8 mph	148.8 feet	25.85 ft/s^2
Stop #5	59.8 mph	144.4 feet	26.64 ft/s^2
Stop #6	60.1 mph	145.2 feet	26.76 ft/s^2

AVERAGE DECELERATION RATE (Phase II): 26.77 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	No
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 26.70 ft/s^2

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 3:57 p.m. **TEMPERATURE:** 79.1°F

MAKE and MODEL: Ford Expedition 4.6L (2WD) **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.2 mph	146.6 feet	26.59 ft/s^2
Stop #2	59.5 mph	144.0 feet	26.44 ft/s^2
Stop #3	59.8 mph	147.5 feet	26.08 ft/s^2
Stop #4	59.7 mph	144.1 feet	26.60 ft/s^2
Stop #5	60.2 mph	147.4 feet	26.45 ft/s^2
Stop #6	59.6 mph	146.2 feet	26.13 ft/s^2

AVERAGE DECELERATION RATE (Phase I): 26.38 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.7 mph	151.9 feet	25.24 ft/s^2
Stop #2	59.7 mph	147.3 feet	26.03 ft/s^2
Stop #3	59.7 mph	156.6 feet	24.48 ft/s^2
Stop #4	59.6 mph	156.5 feet	24.41 ft/s^2
Stop #5	60.0 mph	165.6 feet	23.38 ft/s^2
Stop #6	60.1 mph	172.8 feet	22.48 ft/s^2

AVERAGE DECELERATION RATE (Phase II): 24.34 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	Yes
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 25.36 ft/s^2

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 8:26 a.m. **TEMPERATURE:** 61.6°F

MAKE and MODEL: Ford Expedition 5.4L (4WD) **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.2 mph	162.4 feet	24.00 ft/s^2
Stop #2	60.4 mph	169.5 feet	23.15 ft/s^2
Stop #3	60.1 mph	166.8 feet	23.29 ft/s^2
Stop #4	60.3 mph	147.5 feet	26.52 ft/s^2
Stop #5	59.3 mph	141.4 feet	26.75 ft/s^2
Stop #6	59.5 mph	146.5 feet	25.99 ft/s^2

AVERAGE DECELERATION RATE (Phase I): 24.95 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.9 mph	153.6 feet	25.13 ft/s^2
Stop #2	60.3 mph	155.8 feet	25.10 ft/s^2
Stop #3	60.2 mph	158.4 feet	24.61 ft/s^2
Stop #4	59.8 mph	157.5 feet	24.42 ft/s^2
Stop #5	60.8 mph	165.0 feet	24.10 ft/s^2
Stop #6	60.1 mph	161.7 feet	24.03 ft/s^2

AVERAGE DECELERATION RATE (Phase II): 24.56 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	Yes
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 24.76 ft/s^2

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 2:17 p.m. **TEMPERATURE:** 78.0°F

MAKE and MODEL: Chevrolet Tahoe 5.3:L (2WD) **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.4 mph	151.3 feet	25.94 ft/s^2
Stop #2	59.0 mph	147.7 feet	25.35 ft/s^2
Stop #3	60.1 mph	148.9 feet	26.09 ft/s^2
Stop #4	59.5 mph	147.7 feet	25.78 ft/s^2
Stop #5	60.3 mph	149.1 feet	26.23 ft/s^2
Stop #6	60.4 mph	153.2 feet	25.61 ft/s^2

AVERAGE DECELERATION RATE (Phase I): 25.83 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.0 mph	146.2 feet	26.49 ft/s^2
Stop #2	60.0 mph	154.6 feet	25.05 ft/s^2
Stop #3	60.5 mph	159.3 feet	24.71 ft/s^2
Stop #4	60.0 mph	150.4 feet	25.75 ft/s^2
Stop #5	59.6 mph	150.1 feet	25.45 ft/s^2
Stop #6	60.2 mph	150.9 feet	25.83 ft/s^2

AVERAGE DECELERATION RATE (Phase II): 25.55 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	No
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 25.69 ft/s^2

BRAKE TESTING

TEST LOCATION: DaimlerChrysler Proving Grounds **DATE:** September 21, 2002

BEGINNING TIME: 3:12 p.m. **TEMPERATURE:** 78.9°F

MAKE and MODEL: Chevrolet Tahoe 5.3L (4WD) **BRAKE SYSTEM:** Anti-lock

Phase I

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	59.4 mph	151.5 feet	25.05 ft/s^2
Stop #2	59.2 mph	146.6 feet	25.71 ft/s^2
Stop #3	59.9 mph	144.3 feet	26.74 ft/s^2
Stop #4	59.8 mph	143.7 feet	26.77 ft/s^2
Stop #5	59.7 mph	149.4 feet	25.66 ft/s^2
Stop #6	59.8 mph	159.6 feet	24.10 ft/s^2

AVERAGE DECELERATION RATE (Phase I): 25.67 ft/s^2

HEAT SOAK: (4 minutes)

Phase II

BRAKE HEAT-UP: (Two 90 – 0 mph decelerations @ 22 ft/sec.^{2})

TEST: (Six 60 – 0 mph impending skid (ABS) maximum deceleration rate stops)

			DECELERATION RATE
Stop #1	60.0 mph	147.1 feet	26.32 ft/s^2
Stop #2	60.0 mph	152.7 feet	25.36 ft/s^2
Stop #3	59.6 mph	149.1 feet	25.63 ft/s^2
Stop #4	60.1 mph	152.6 feet	25.46 ft/s^2
Stop #5	59.7 mph	159.4 feet	24.05 ft/s^2
Stop #6	60.1 mph	169.8 feet	22.88 ft/s^2

AVERAGE DECELERATION RATE (Phase II): 24.95 ft/s^2

Phase III

	Yes/No
Evidence of severe fading?	Yes
Vehicle stopped in straight line?	Yes
Vehicle stopped within correct lane?	Yes

OVERALL AVERAGE DECELERATION RATE: 25.31 ft/s^2

ERGONOMICS AND COMMUNICATIONS

ERGONOMICS	Ford 2WD Explorer	Ford 2WD Expedition	Ford 4WD Expedition
FRONT SEAT			
Padding	6.44	7.78	7.78
Depth of Bucket Seat	6.33	8.11	8.11
Adjustability – Front to Rear	6.44	6.22	6.22
Upholstery	8.11	8.00	8.00
Bucket Seat Design	6.56	7.89	7.89
Headroom	6.22	9.11	9.11
Seatbelts	6.33	6.22	6.22
Ease of Entry and Exit	6.78	7.22	7.22
Overall Comfort Rating	6.67	7.78	7.78
REAR SEAT			
Leg room – Front seat back	4.44	7.13	7.13
Ease of Entry and Exit	5.67	7.33	7.33
INSTRUMENTATION			
Clarity	6.22	6.00	6.00
Placement	6.63	6.44	6.44
VEHICLE CONTROLS			
Pedals, Size and Position	6.67	8.11	8.11
Power Window Switch	7.89	7.11	7.11
Inside Door Lock Switch	5.78	8.44	8.44
Automatic Door Lock Switch	7.78	7.89	7.89
Outside Mirror Controls	6.33	7.33	7.33
Steering Wheel, Size, Tilt Release, and Surface	5.56	6.22	6.22
Heat/AC Vent Placement and Adjustability	6.78	6.56	6.56
VISIBILITY			
Front (Windshield)	7.33	8.56	8.56
Rear (Back Window)	6.63	7.00	7.00
Left Rear Quarter	6.00	6.22	6.22
Right Rear Quarter	5.78	6.11	6.11
Outside Rear View Mirrors	5.22	9.22	9.22
COMMUNICATIONS			
Dashboard Accessibility	5.75	5.50	5.50
Trunk Accessibility	5.00	5.00	5.00
Engine Compartment	8.11	8.22	8.22
TOTAL SCORES	**179.44**	**202.73**	**202.73**

ERGONOMICS AND COMMUNICATIONS

ERGONOMICS	Chevrolet Tahoe 2WD	Chevrolet Tahoe 4WD
FRONT SEAT		
Padding	7.78	7.78
Depth of Bucket Seat	7.44	7.44
Adjustability – Front to Rear	7.33	7.44
Upholstery	8.00	8.00
Bucket Seat Design	8.22	8.22
Headroom	9.11	9.11
Seatbelts	7.33	7.11
Ease of Entry and Exit	8.00	8.00
Overall Comfort Rating	8.44	8.44
REAR SEAT		
Leg room – Front seat back	7.89	7.67
Ease of Entry and Exit	7.11	7.00
INSTRUMENTATION		
Clarity	8.33	8.33
Placement	8.33	8.33
VEHICLE CONTROLS		
Pedals, Size and Position	7.89	8.00
Power Window Switch	7.56	7.89
Inside Door Lock Switch	6.44	6.44
Automatic Door Lock Switch	7.78	7.78
Outside Mirror Controls	7.89	7.89
Steering Wheel, Size, Tilt Release, and Surface	8.11	8.11
Heat/AC Vent Placement and Adjustability	8.11	8.22
VISIBILITY		
Front (Windshield)	8.22	8.22
Rear (Back Window)	4.11	7.56
Left Rear Quarter	5.56	6.11
Right Rear Quarter	6.22	6.44
Outside Rear View Mirrors	8.33	8.33
COMMUNICATIONS		
Dashboard Accessibility	8.92	8.92
Trunk Accessibility	8.67	8.44
Engine Compartment	8.44	8.44
TOTAL SCORES	**215.59**	**219.69**